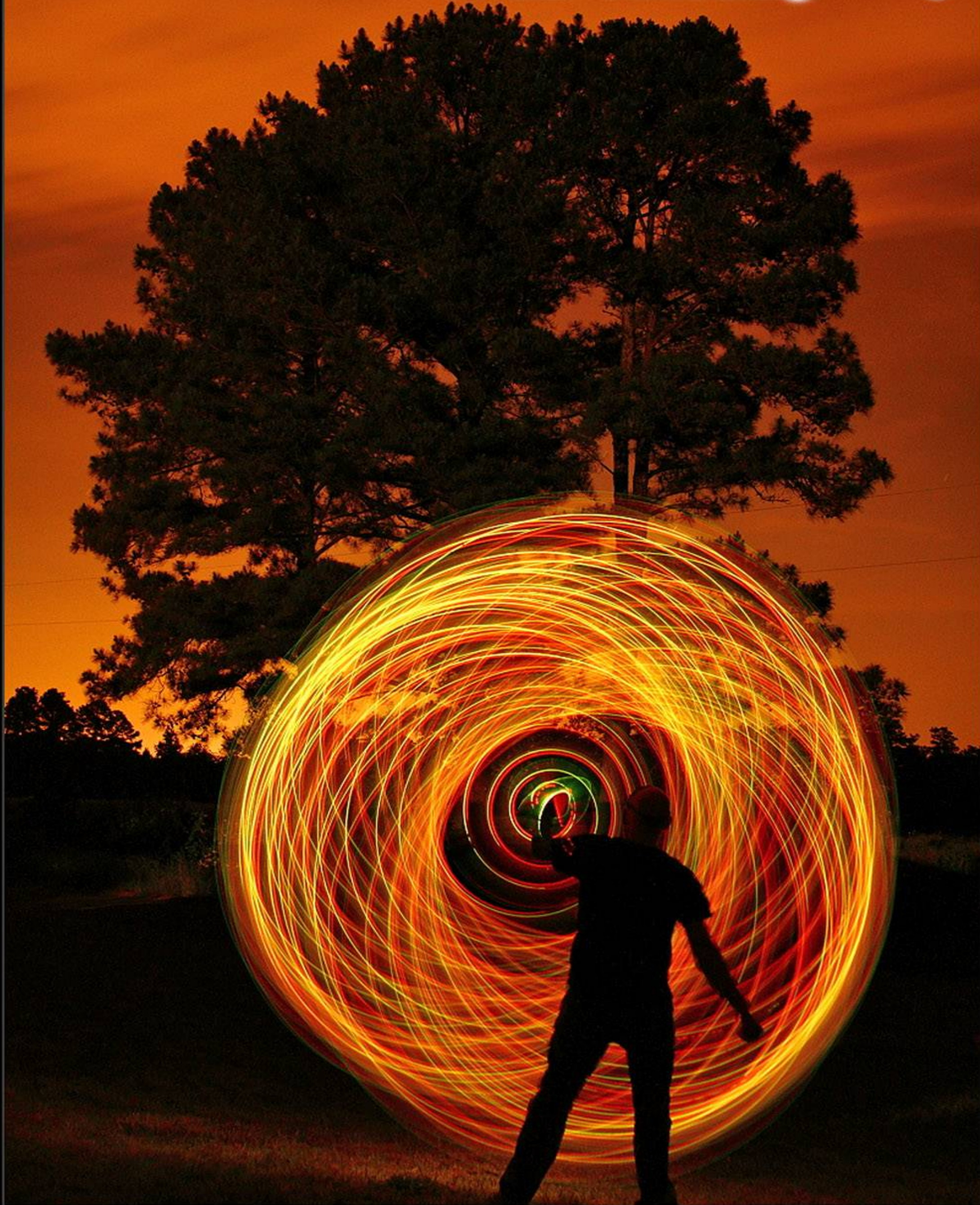
TRICK PHOTOGRAPHY AND SPECIAL EFFECTS

The Ultimate Guide of Tricks, Techniques, and Ideas that Create Mind-Twisting Images



By Evan Sharboneau

Legal

Front cover photograph by Dennis Calvert.

Table of Contents

Trick Photography and Special Effects

Photoshop Projects

Forward from the Author

Hello and thank you for purchasing my **Trick Photography and Special Effects** ebook! I have created this ebook to share some of the tricks I've learned over the years so that others can get a jump start on getting inspired to create artistic images with photography and Photoshop. This ebook is structured so that at any point in time you can jump to just about any page and start getting inspired with new ideas and techniques. With that being said, however, it wouldn't be a bad idea to read the ebook in order because each technique generally gets more difficult and complex as the ebook progresses.

This ebook wouldn't have been made possible to create without the help from all the photographers who have contributed their images to this project.

Remember that all images in this ebook are hyperlinked to their original location on the internet. This means you can click on any photo in this ebook and it will direct you to the original photo on the web! Feel free to comment the photographer's great work and ask them questions if you want to know more about their image. Support the artists!

If you have any questions, comments, suggestions, testimonials, corrections, new ideas or photos that you would like to see in future editions of this ebook, feel free to e-mail me at trickphotographybook@gmail.com. I'm happy to answer questions and respond to feedback.

You can also find me on YouTube, Flickr, DeviantART, Twitter, and of course my blog/website.

Enjoy!

Evan



Preliminaries

This section will briefly talk about cameras, lenses, and Adobe® Photoshop® software. If you are just starting out in photography, my advice would be not to worry too much about what type of equipment to get. Get a camera that is affordable and use it for a year or two. If your passion increases or you start to demand more features and higher image quality, only then should you get something that is more expensive. I started out with an 'okay' camera and then got a more expensive one later. My 'okay' camera is now my secondary/back-up camera.

Camera Bodies



The techniques used in this ebook are geared towards people who own DSLR cameras. The reason why is that DSLR cameras are able to manually adjust the aperture, shutter speed, ISO, and white balance. Most DSLRs also have the option to take exposures that are 30 seconds in length. This will be a useful feature to have when doing the tricks covered in the long exposure effects module.

Some high-end point-and-shoot cameras will work okay, but chances are if you want to have more control over what your final image will look like, a DSLR would be a much better option than a point-and-shoot.

The first DSLR camera I bought was a Nikon D50 (now out of production), simply because that is what the man at the store recommended me when I told him “I want something that is good for long exposures”. I didn't put a huge emphasis on gear and didn't stress about what camera I wanted, because the essential elements needed to capture creative photos are in every DSLR: manual control over the shutter speed, aperture,white balance and ISO. I was leaning towards Nikon anyway because my father has an old film SLR with some lenses that I could use on the D50.

After learning how to use the camera for a year or two I realized I wanted the Nikon D300s. Don't worry too much about which brand of camera to get because they are all basically the same. Canon, Pentax, Nikon, Sony, whatever. It's the image that matters, not the what brand of camera it was taken with.

Getting a camera that allows wireless remotes, cable releases, an external flash sync (PC) port, and a mirror lock up mode is the next step up from a entry level DSLR. This wasn't something I needed when I was starting out, but as I progressed and got the hang of things, I demanded more image quality and extra features.

Lenses



Another reason to get a DSLR over a point-and-shoot is because DSLRs give you the option to swap different lenses on and off the camera body. Lenses are more valuable than the camera body itself because the technology doesn't get outdated as frequently, they are a bigger factor in determining image quality, and they can be used with other DSLRs of the same brand. That means that if you buy a good lens today, you will be able to use it on different camera bodies of the same brand tomorrow. You will most likely go through more cameras than you will lenses.

I usually use the 18-55mm kit lens that originally came with the first DSLR. It is nothing fancy, just a basic lens. The reason why I use it is that it is a good general purpose lens and the image quality is sharp. It is not over-the-top expensive but it isn't a piece of junk either. One additional item I would also recommend is a high quality protective UV filter for your lens (seen right beside the lens displayed above). This protects it from scratches and smudges.

Tripods

A tripod is essential to have when you are working with trick photography because many of the tricks require that the camera remain in the exact same location in 3D space when taking a series of photos.



I would highly recommend getting a tripod. I don't have anything fancy, just an old aluminum Sunset PR-5500 (old and out of production). You could probably find one similar to this at a thrift store somewhere for $5-$20. An old, heavy, bulky, clunky aluminum tripod purchased at a thrift store is probably better than a cheap plastic one purchased brand new at a camera store.

If you want a *new* tripod, I reccomend the Manfrotto 055XPROB with a Manfrotto 496RC2 Ball Head.

Photoshop

During this ebook I will sometimes mention using Adobe® Photoshop® software. I highly recommend that if you do not have Photoshop right now, that you pick it up. Photoshop is the industry standard for image editing. A lot of magical changes happen to photos inside Photoshop and it is particularly useful for trick photography.



Basically, there are three versions of Photoshop:
Adobe Photoshop Elements / Mac Version
Adobe Photoshop CS5 / Mac Version
Adobe Photoshop CS5 Extended / Mac Version

What one should you choose?
If you have had your camera for a while and photography, photo-manipulation and art is a significant part of your life, get CS5. It has a vast number of features and gives a lot of control to the user. Most of the tutorials you see online and in this ebook will be geared toward CS users. If getting a brand new copy of CS5 from Amazon.com is too expensive, I recommend getting a used copy of CS4 or even CS3 from eBay.com. You most likely will find it with a significantly cheaper price tag. I would go with Photoshop CS4 or CS3 over the newest Photoshop Elements any day.

I wouldn't get anything below CS3 because the technology is becoming more and more outdated. If you have an older version of Photoshop, such as CS1, CS2, CS3, or CS4, you can just buy a CS5 "upgrade" and get a big discount on the price. Discounts are also available for students.

What if you don't want to buy an image editing program?
If you flat out don't want to pay for Photoshop at all, you can download the free 30 day trail from Adobe.com or download the free alternative program, GIMP. The GIMP has a different graphical user interface than Photoshop, so some the tutorials in this ebook will need to be done slightly differently in the GIMP.

Now that we are done discussing the preliminaries, let us jump right into the first (and largest) chapter: *Long Exposure Effects and Light Painting!*

On we go.

LONG EXPOSURE EFFECTS AND LIGHT PAINTING



Long Exposure Effects and Light Painting



First of all, what exactly *is* a “light painting”? To quote Wikipedia: *“Light painting, also known as light drawing or light graffiti, is a photographic technique in which exposures are made usually at night or in a darkened room by moving a hand-held light source or by moving the camera...”* Most of the tricks and techniques can be done **right in-camera**, without the need for Photoshop software or any image editing program (although these do a great job on enhancing the photos).

Before we start diving into the chapter to learn how to use different light-toys to create beautiful illuminated photographs, let us first discuss how to use the settings on our camera. I recommend watching my video on shutter-speed, aperture, and ISO in addition to reading the content below. If you are an experienced photographer, feel free to skip this section entirely.

Setting the Shutter Speed

The shutter speed will be determined by you and how long you think it will take to make your light painting. In all DSLR cameras, there is a piece of cloth or plastic that is between the lens and the camera's sensor. This cloth is called the “shutter”. When you push the button on your camera to take a picture, it opens the shutter for a duration of time, and then shuts it back up again to stop the exposure from taking place. Hence the term “shutter speed”.

> You can set your camera to take different durations of shutter speed. Here are some examples:
>
> B or BULB, 30”. 25”, 20”, 10”, 5”, 1”, ½, 1/5, 1/10, 1/100, 1/250, 1/500, 1/1000, 1/4000, 1/8000

Let's go over this chart from left to right. On the very left we see “B or BULB”. BULB mode is basically a manual setting for shutter speed. It means that if you hold your finger down on the shutter button for 5 seconds, the exposure will be taking place during the 5 seconds you have your finger on the button. If you hold it down for 50 seconds, the exposure will be 50 seconds.

After BULB mode, moving to the right of the scale, we see 30”. This obviously means 30 seconds, and is the usually longest shutter speed available on most DSLR cameras. You can get into longer exposure times by either using a cable release, a wireless remote, or simply holding the shutter button down for a really long time in BULB mode. When it comes to going past the camera's maximum shutter speed, not all cameras are alike, so you will have to figure out which method works with your specific camera.



Next, after 30”, the shutter speed simply gets faster and faster. As you can see, everything after 1” turns into fractions of a second. Most camera's just display a number like “125” to represent “1/125th of a second”, so don't get confused and mistake “125” for “125 seconds”. Look at it as a fraction.



Here is a popular long exposure trick that you have probably seen a dozen times: Traffic.

The reason why the moving car lights look like long lines is because this photograph had an exposure time (shutter-speed) of 15 seconds. If the exposure time was 1/200th of a second, the car lights would look like dots and not lines (just like they do in real life).

You might be asking "How come I can't see the actual cars?". The reason why you can't see the actual bodies of the cars is because they are in constant motion and not enough light was shining on them to make a noticeable trail. The same thing happens when you are holding a light and doing a light-painting. The reason why you can't see the light-painter's body is because they don't have enough light hitting them while they are moving around. If they were wearing glowing clothing, however, then that would be different!

The opposite is also true. If you were holding a candle in front of you but you were completely *still*, then your body would appear in the photograph. This is why we can see the trees and snow in the photograph above, because the foreground was stationary and was being lit up by the sky (and also by the traffic).

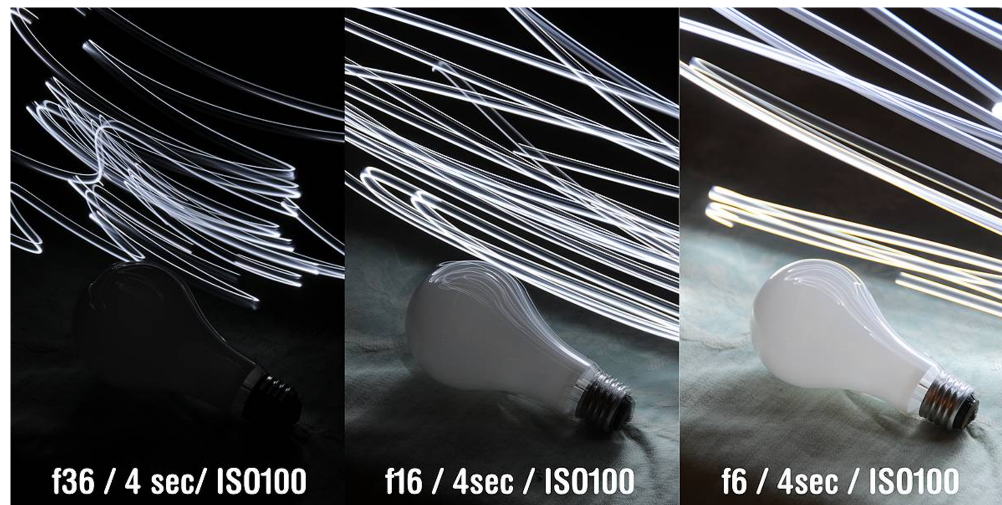
More Resources on Shutter-speed:
http://en.wikipedia.org/wiki/Shutter_speed
http://www.digital-photography-school.com/shutter-speed
http://www.smashingmagazine.com/2008/08/24/45-beautiful-motion-blur-photos/

Setting the Aperture

The aperture is how wide the hole in your lens is. It is very similar to your eyeball's pupil. The bigger the diameter, the more light hits your camera's sensor. So, the bigger the opening, the brighter the image! Sometimes you will hear people refer to the aperture as the “F-Stop” number. It's the same thing.



video



For light painting, adjusting the aperture is mostly used for adjusting how bright your light source will appear to be. As we can see in the example above, no other settings were changed in these three photographs except the aperture. The only thing visible at F36 is the streaks of light. When we move down the line to F6, we see that the light streaks are much brighter *plus* we can see more ambient light around the environment from the original light source.

There is also a side effect that comes with the aperture, and that is called **Depth of Field**. To give an example of what depth of field is, take a look at the two examples below. The one on the left has an aperture opening of F11, and the one on the right has an aperture of 2.8.


F11


F2.8

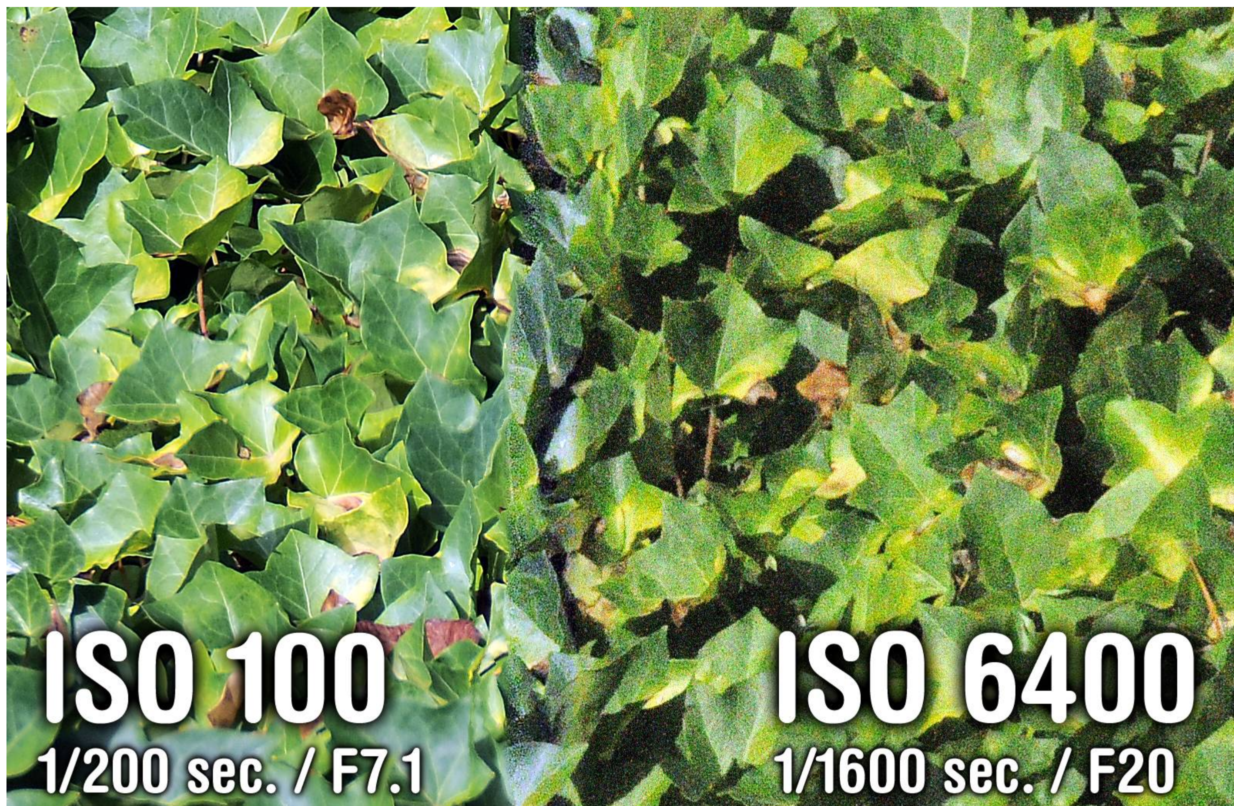
As you can see, the depth of field determines how deep or shallow the focus plane is. Using smaller F numbers will make the hole (aperture) in your lens wider, thus making your depth of field more shallow. Using larger F numbers will make the aperture smaller, creating a deeper depth of field.

Setting the ISO
The ISO (also known as 'ASA' or simply 'film speed') determines how sensitive your sensor is to light. The higher the ISO number, the brighter your image will be. The lower the ISO number, the darker your image will be.

Now I know you are thinking “Great! I'll just use the highest ISO possible to make my image as bright as I can, then I'll just stop down my F stop to make up for the difference!” Well, sadly but surely there is a side effect that comes along with ISO, and that is called noise.

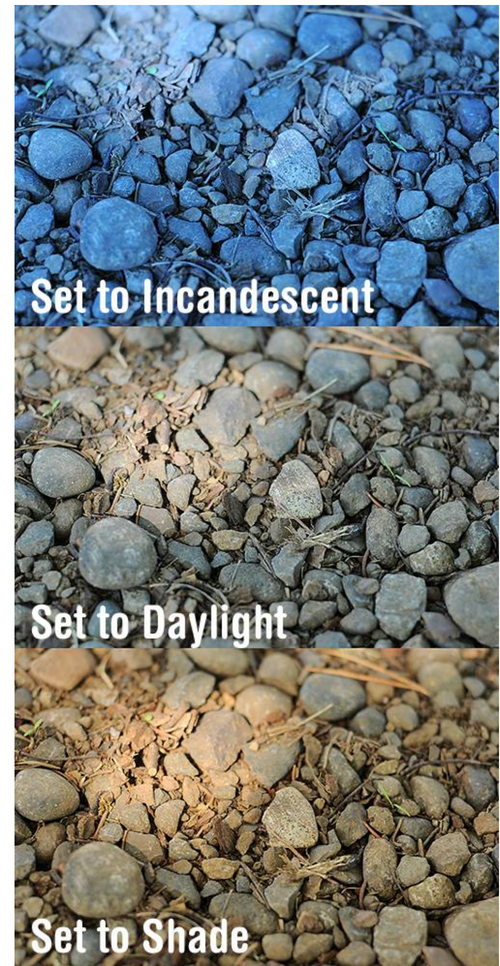
Noise is basically color grain that destroys the fine detail and color in your photographs. Always try to use the lowest ISO you can, especially when doing long exposure work. I usually try to keep my ISO in the 100-400 range.

The only situation where you will need to use higher ISO numbers is if you are in a dark environment with no tripod available. What your camera will do is open up the aperture all the way to let as much light in as it can, and then set the shutter speed for several seconds to let in even more light. Because we humans can't hold a camera perfectly in place for several seconds, our image would be very blurry. So, in order to get around that, we would *have* to use higher ISO numbers in order to compensate for the long shutter speed. If we had a tripod however, this would not be an issue. If you want professional quality photos that were taken in dark environments, you will have to use a tripod and a low ISO.



Setting the White Balance

The white balance is basically color correction right in your camera. If the light you are photographing has more cold/blue tones, you will want to raise the white balance to a warmer/redder color temperature to even out the tones.



Look in your camera's manual to figure out how to change the white balance preset and set your own custom white balance. The process for setting the white balance is different for every camera so I cannot explain how to do it in this ebook. Use Google or your camera's manual instead. Of course, if you don't want to mess around with it, just leave it on Automatic.

The photographs on the right were taken on a sunny day. The rocks were only *slightly* shaded by a tree.

These basic white balance presets should be on your DSLR and are probably ordered in the exact same way:

- Incandescent/Tungsten (2500-3000K)
- Fluorescent (~4000-5000K)
- Daylight (~5200)
- Flash (~5400K)
- Cloudy (~6500-8000K)
- Shade (~8000-10000K)
- Custom / Saved Preset / Set Color Temperature



So how does white balance pertain to light painting? Well, different types of lights produce different types of color temperatures. The light you see on the right side above the piano is a key chain LED, and the light on the left side of the piano is an incandescent Maglight flashlight bulb.

The light on the right produces cooler tones than the one on the left. The white balance for this particular image was set right in the middle at 5000K. Can you guess what white balance would make the right light white? (wow, say that five times fast!) What about the one on the left? The answer: 2500K for the left, 10000K for the right.

Generic Common Settings for Light Paintings:
Although each setting on your camera will be dependent on the lighting situations, here is a generic combination of settings that you can use as a rule of thumb if you are confused:

Put your camera on a tripod and use Manual Mode and manual focus, lower the ISO number as low as it can go. Have your aperture at F5.6 and your shutter speed at 5 seconds. If you want to make the photo brighter, change the aperture to a smaller number (like 2.8). Adjust your shutter speed as necessary.

That is the bare-bones-basic-generic-rule-of-thumb setting for long exposure work. Drawing with light is – for the most part – really easy and fun, even though it can be challenging to get things *just* right. For your first try, simply wait until it is night time, put your camera on a tripod, and put your camera on manual mode with the settings above applied. Then take anything that illuminates or glows (like a cellphone or glow stick, for example) and wave it around about 5 feet from the camera while it is taking an exposure.



Oh but wait! There is a helpful tip about focusing that I should mention before we move on. In order to help set your focus point in the dark, simply place an LED or flashlight facing the camera on the spot where you want to focus. Focus on the light until it becomes sharp, then switch to manual focus so the camera won't try to keep autofocusing, and you're set to go.



Fundamental Lights and Techniques



There are many different light toys that create different effects. Each one has specific uses and applications. In the end, it all boils down to something that illuminates. Things that have been used before include sparklers, glow sticks, flashlights, maglights, fire/torches, RGB strips, Christmas lights, cell phones... anything...

I'll be going over Maglite® flashlights and LEDs first, because these are good generic lights. We will cover the fancier light sources later.

Maglite® Flashlights and LEDs

Maglites and LED lights are great tools. Each has advantages and disadvantages. Maglite flashlights give out nice yellow natural looking color because of the bulb. LEDs generally give out more of a colder tone in color. You can always change the white balance on your camera to make up for any temperature difference. I consider Maglights and LEDs to be the 'default' toy.



Maglite M2A016 Review
The first tool is the Maglite M2A016. This is a mini-flashlight. There are larger ones available that are better for lighting up larger objects.



The advantage that Maglights bring to the table is the natural looking bright bulb. The cap can be twisted to adjust the beam into a spotlight or a floodlight.

The cap can also be taken off entirely and reveal the full omnidirectional bulb. This 'candle mode' is what makes the Maglight so fantastic. The best color to get for the metal casing would be black, simply because black reflects the least amount of light.

There are also two accessories I'd recommend for this light: a fiber optic adapter that allows you to airbrush light very accurately onto objects, and the IQ Switch (but only if you want an on/off button on the end of the flashlight.)

Key chain LED Review



The next tool I recommend is this pack of 10 LED Mini Micro Black Keychain Lights for **$11.49** on Amazon.com. It's a steal. These lights have a button that can be pushed to quickly turn the light on and off, as well as a lock to keep the LED on constantly.

The advantage these key chain lights have is that the LED can take more damage than the delicate glass bulbs the Maglight has. Another advantage is that you get **ten** of them for only 12 bucks!

The disadvantage is that the light can't be seen as well when turned away from the camera. For example, the Maglight, when in candle mode, has the same amount of light intensity when viewed directly as it does when viewed at a 90 degree angle. The LEDs however, do not. The intensity is about 1/4th as much when viewed at a 90 degree angle.

There is a cool trick that can be done when you buy the 10 pack, and that is to tape them on a flat wooden piece of wood or metal and turn them on all at once. You will then have this sweet light-toy that makes 10 perfectly parallel lines all at once!



The Two Styles

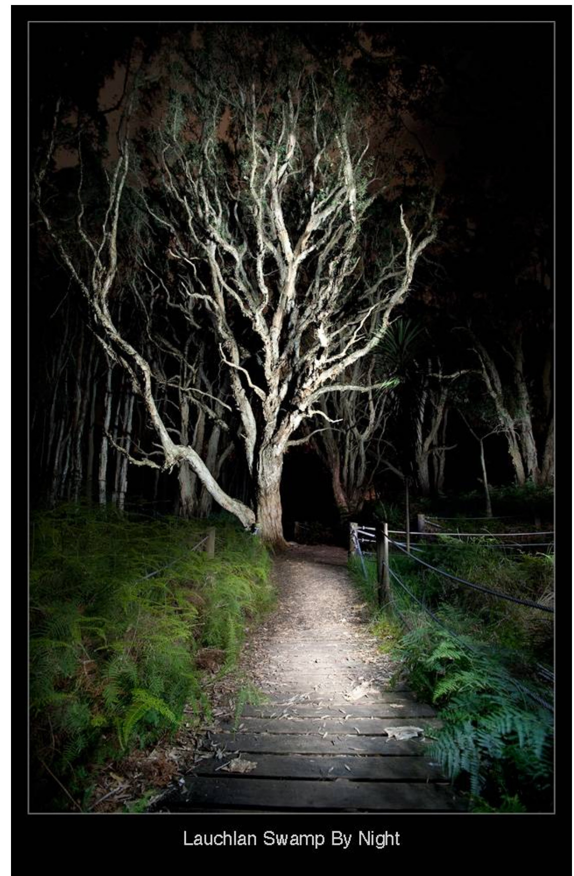
If you boil it down, there are basically two ways to light paint. The first method is where you simply paint your scene with light but do not reveal the light source. I call this “Light Painting”

The second method is where you draw things into your scene and reveal your light source. I call this Light “Drawing”. Both styles are officially called “light painting”, I just made up light “drawing” so I could tell you the difference between the two styles.

Light Painting

Whether you are light-painting landscapes, interiors, exteriors, or even small objects, this method will give your scene or subject a beautiful, magical, illustrious look.

To increase the diffusion of the light, pass the beam of light over your subject multiple times, but do it very quickly. This will even out the light and make everything more natural looking. You can also physically move around your subject and light paint the scene from different angles.



Lauchlan Swamp By Night

Light Drawing

This is where you move the light around the frame while it is turned on. This makes light 'trails' or 'streaks'. In the example below, you can see that the balls have been light 'painted' while the background has been light 'drawn' with multiple colored LED's. This example shows the best of both worlds!



Light Painting

If you have an extremely powerful flashlight, it is very possible to illuminate *entire landscapes* from far away distances in the dark as well! The LED Lenser X21 looks like a good tool for this. I haven’t personally used it, but it looks *very* powerful based on some of the YouTube videos I've seen. I bet you could light-paint an entire mountain with the thing.

For normal landscapes that you can walk on (like fields and sea rocks) however, normal flashlights work just fine. Generally speaking though, the brighter the better.





Now, the example to the above is pretty extraordinary - it was photographed by Brent Pearson. You'll notice that the light on the foreground is very diffused (soft) and natural looking. Brent Pearson explains all the lights he uses and how to set them up in his ebook: Night Photography and Light-Painting.

Normal flashlights such as Maglights do work, but the light may appear harsh or uneven. If you are annoyed with the 'un-even-ness' of the light, try putting some sort of diffusion material (cloth, etc.) over the front unit of your flashlight or upgrading the bulb inside of the Maglight to an LED.

Personally, I find that the yellow tone and “uneveness” that comes from the regular kypton bulbs is attractive, but others prefer the LEDs.

LED Lenser flashlights is another good option. the beam of light is brighter and more even.

Using The Fiber Optic Adapter

If you are dealing with smaller hand sized objects, use a Maglight with a fiber optic adapter. The fiber optic adapter is a cap that tightly goes over the front of the Maglight, with a fiber optic tube coming out the end.



As far as I know, the fiber optic adapter is only available for the *miniature* Maglight that I reviewed earlier, but try searching for larger versions. You can order the fiber optic cable in different lengths. I think having both a short 7 inch one and a long one is a good idea. I only have a short one at the moment (as seen on right).

Using the Maglight with a fiber optic adapter will give you the ability to light-paint small objects with extreme accuracy. This will allow you to almost literally airbrush light onto your object with very soft, yet very accurate light.

It also gives you the ability to get into small crevices. An example of this would be light painting between computer keyboard keys.





Light Drawing

Light 'drawing' can get pretty crazy. You will see many psychedelic images with light drawings later on in this ebook, but let us first discuss what type of images can be achieved using Maglights and LEDs.



You can take the cap off your Maglight and trace objects in candle mode. This can also be done with photon LED lights as well, but Maglights are long and easy to hold onto like a pen or pencil, plus they have the omnidirectional light bulb which is ideal for tracing things.

Try making your strokes quick if possible because if you hold the light in the same place for too long your hand, arm, and even body will start to faintly show up in the photograph. Wearing black clothing will also help minimize 'ghosting'.



The example on the right was 26 seconds / F8 / ISO 100.

3 seconds / F16 / ISO 100

This is another wonderful photograph by Duchovny, the same photographer who did the chair on the previous page. The only thing he used to illuminate the subjects is a Maglight. He wedged plasticine clay between the back of the card and the table to enable the cards to stay upright. It's a very clever trick and one that would be hard to do without the length that the Maglight offers... Something Photon lights just don't have.

Maglights have a very convenient hole on the end of casing as well. You can put a string through the hole and swing the Maglight between objects if you need to get around tight spaces or if you just want natural looking smooth strokes.



LED Finger Flashlights



These lights are little LED Finger Flashlights that wrap around your fingers. My body remained invisible because it was not illuminated and was in constant motion. Remember that you can draw faces or shapes like hearts or words. Get creative! These images are 30 second exposures.



















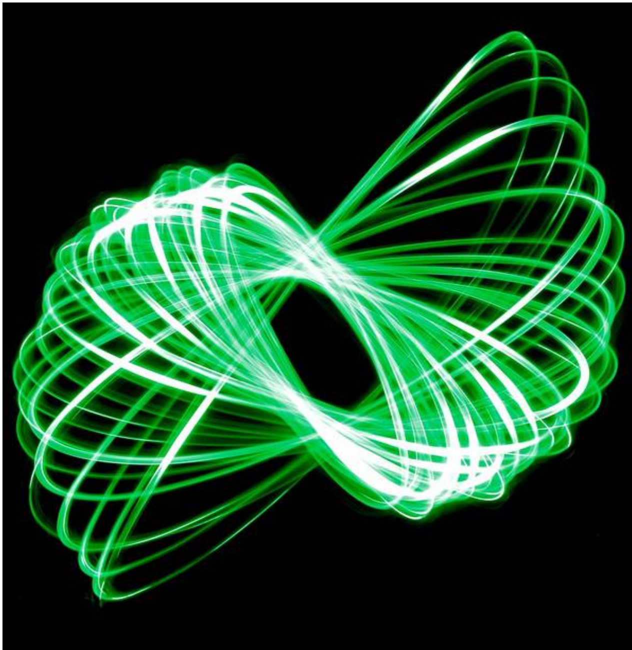


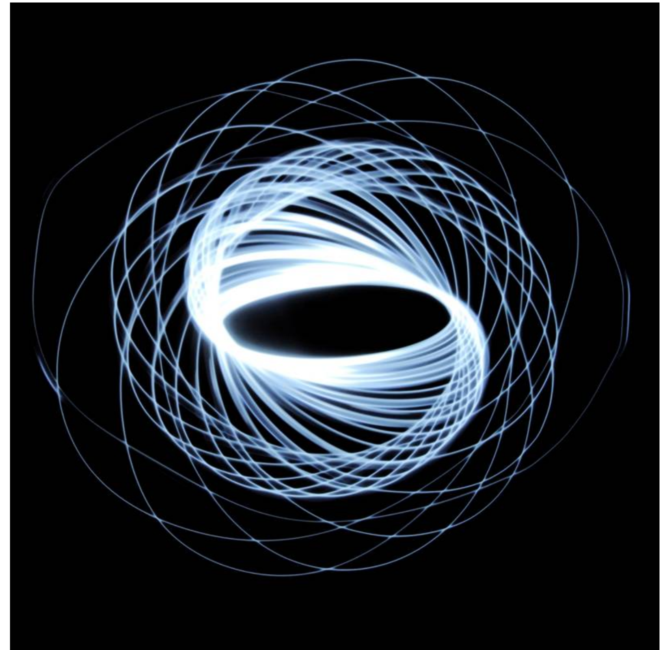




This apple photo was created with a key-chain LED. I simply put the apple on a white board (in a pitch black room) and then frantically moved the Photon light all around the apple, holding it by the key chain ring. You will be able to see things that are faint in the background (such as my bed blankets) unless you use the Burn tool in Photoshop or go to *Image > Adjustments > Selective Color > Blacks*, and then slide the black slider all the way up. This really cleans up the background and makes it pitch black so not even the faintest object will appear (they shouldn't appear too much anyway, but it is not a bad idea to burn out the blacks completely).

Physiograms

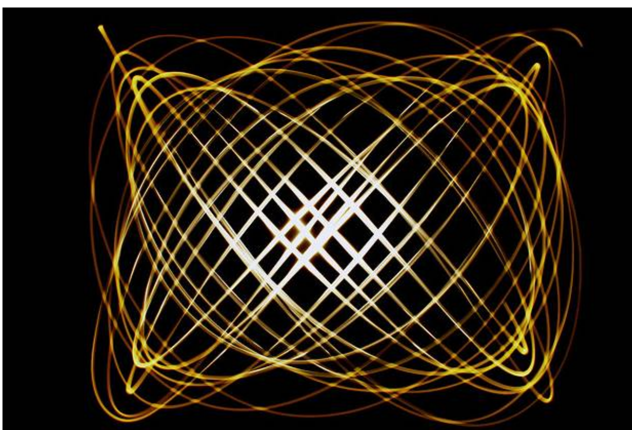




These are called physiograms. How do you create them? Simply tie a string to the end of a flashlight or LED, then attach the other end of the string to the ceiling. A string that is about .5-2 meters is fine.

Once your light is dangling from the ceiling, put your camera on the floor facing upward, right underneath the light. Put your camera on manual focus. Turn the room lights off and the Maglight on, give the Maglight a little push, then take your long exposure. I usually stick to 30 seconds.

Sometimes if you are using a wide aperture, the light can spill onto the background. If this happens, you can fix it in Photoshop software by selecting *Image > Adjustments > Selective Color* and then turning down the blacks so the background is totally black. I would recommend using the lowest ISO possible and then try F8 to F16. More physiogram examples can be found here.



You can also make "compound" physiograms (shown left). This is where you have the string attached to the ceiling in a Y shape, with the light source at the bottom end of the Y.

The Y string will create different patterns that are not just "spirals" like you see above. Try experimenting with different lengths of string on each end (i.e. make the lower half longer, the upper half shorter, etc.) You can also have three or more strings all attaching to the middle string where the light hangs from. Each variation will make a different pattern.

Other Light Sources

Flashlights and LEDs are just the beginning. This next chapter will give you the low-down on all the other crazy light toys you can use to make your pictures more extreme.

RGB LED Strips



Sure you can use a single LED as a light painting tool, but why not spice it up 20 times or so and get an LED *Strip*? An LED Strip is a flexible strip with a bunch of LEDs on them. This enables you to create many parallel lines all in a single stroke. You can also buy a remote for RGB Strips to change the colors.

RGB LED Strips usually are meant for plugging into the wall, so they do not run on batteries. If you want to run them on batteries you basically need to wire it up yourself and match the amount of volts it takes. For example, if the RGB Strip takes 12V, you will either need to use one of the following combinations of batteries:
- one 12V battery
- one 9V plus two 1.5V AA batteries
- eight 1.5V AA batteries
- two 6V Batteries, etc.

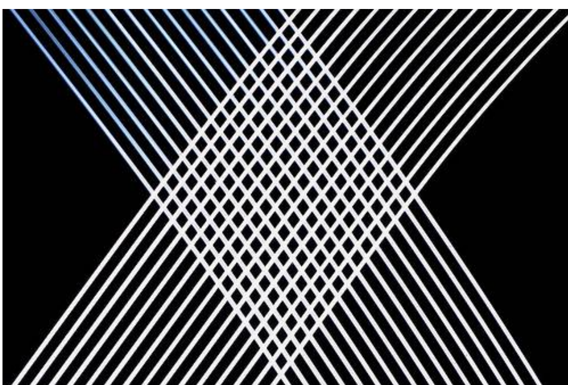


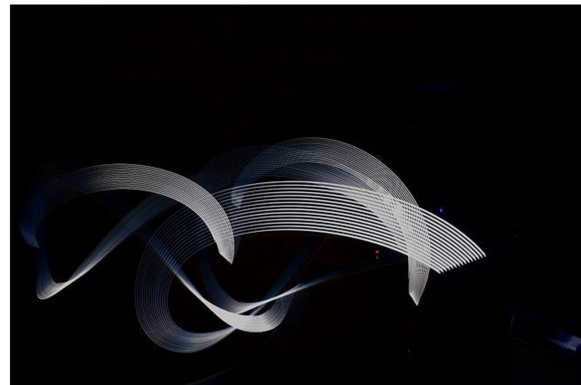
If you need help wiring the batteries up, look at this tutorial and the comments below it, because there is a note about safety. There are a lot of different kinds of LED strips, so just do a search on eBay, Amazon, or Google for the term "LED Strip" and pick the one you like.



An easy alternative for RGB Strips is to get a Bayco LED Night Stick / Work Light (shown left). This makes things a little easier because it is already battery operated.

Below are two images that are a result of using the Bayco LED Night Stick.





Laser Pens



Laser pens offer highly directional, highly intense light. Laser pens have a few specialty uses. They are best used when quickly shining the light up and down a persons face or body, writing on surfaces, or when shined though embossed glass (this will redirect the light in all sorts of places, it looks wild!)



1 sec. / f 3.5 / ISO 200

Scribble with a laser pen. The example on the left show a laser pen stroked up and down a models face. The model was very still. Be careful not to get the laser in your eye! When you are using a laser pen on a model, the photograph can look twice as better in black and white. The original photograph of this was taken with a red laser pen, but it looks so much more clear when you put it in Photoshop software and make it black and white. Click *Image > Adjustments > Channel Mixer* and then put Red on 100% with blue and green at 0%, Monochrome checked.

You can also write and draw things on walls. If your aperture is open wide enough, and your shutter speed long enough, the glow of the laser has the potential to illuminate things around it. Laser pens are BRIGHT though, so be sure to experiment using different apertures. Laser pens come in different colors, take a look at all of them on Amazon. If you want to change the color of the laser, you can also do it in Photoshop by going to *Image > Adjustments > Hue/Saturation…*



This is another example of taking a laser pen and shining it on a person's body. I think this looks better in color because it gives it that "techno" feel, especially in green. If you want the background to be completely black like it is in this photo, there are three options you have:

1) Photograph it outside with nothing close behind you (like an empty field). If you do it this way you can really go wild with the laser and you won't need to worry about accuracy at all.

2) Carefully point the laser at your subject making sure it doesn't go on the background.

3) Remove the background inside of Adobe Photoshop software.



This is an example of how you can incorporate fog machines with laser pens, an effect that is rarely done outside of raves and clubs. The fog reveals the laser beam completely and gives a general glow in the atmosphere. Fog machines also give a glow effect to other light sources other than laser pens.

23 Seconds / F5 / ISO 1600.



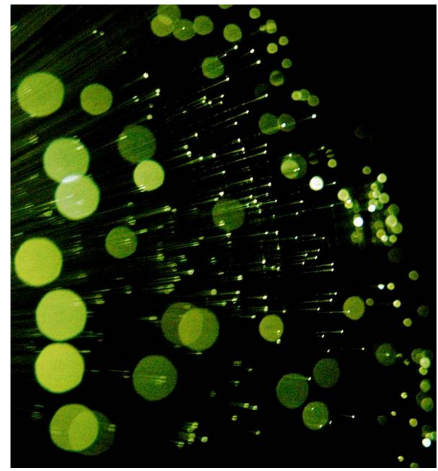
I didn't think this could be done, but drawing orbs with laser pens is possible!... sort of. This was done with a special laser that shoots out multiple beams in different directions. Most laser pens have the laser deep inside the metal casing in order to hide the beam around the edges, so making orbs with laser pens is more rare than making orbs with LEDs. Notice how the laser can also be seen around the tunnel that it was photographed in, and the "sparkle" effect that is on the orb itself. If you've never heard of an orb before, I'll describe how to make an one later in this book, so keep your eyes out.



One more great laser pen technique is shining it close to the ground to create long lines. In this example by Pensans Photography we see that he has made an orb and then held a laser pen somewhat close to the ground and turned it on and off in multiple places to create the long lines of light underneath the orb.



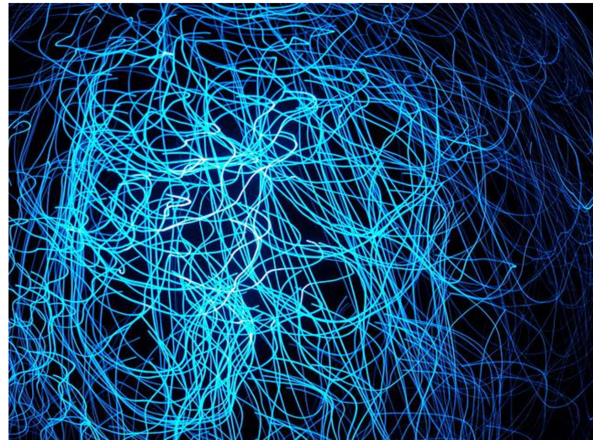
Fiber Optics



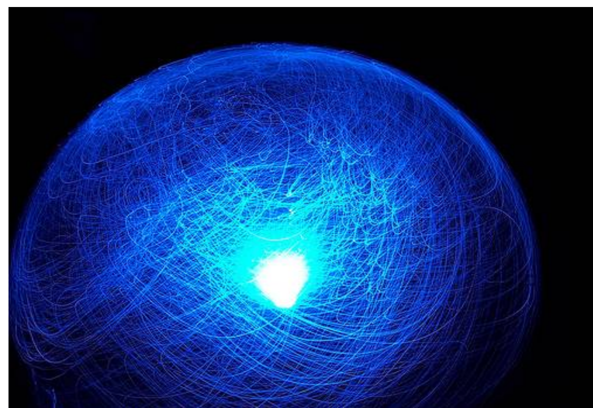
If you have a lens that offers shallow depth of field (50mm f1.8, for example), fiber optic lights can be a fun thing to photograph because half of the lights will be sharp, and the other half will be big bokeh dots. I tripod was used for the shot on the right.



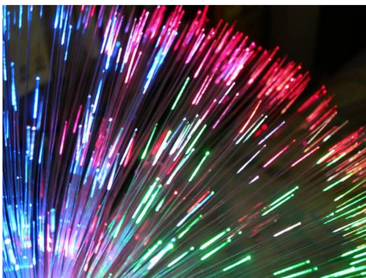
You can also get a smooth flowing type of look by simply 'swooshing' the lights one long directional stroke from one end of the frame to the other....



…Zoom in and scribble them around in all different directions..



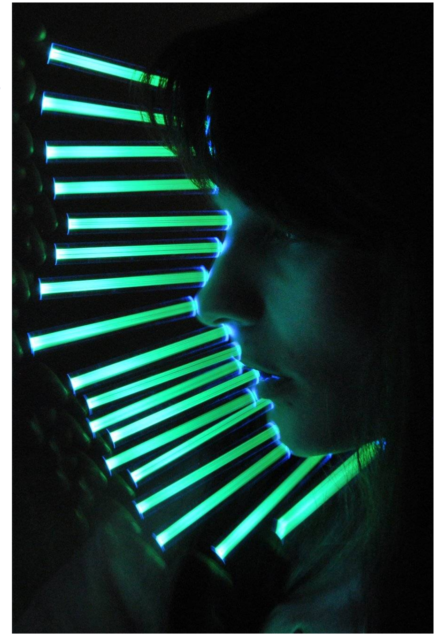
… Or go wide angle and squiggle them around with the fiber optics still attached to the base holder. The camera will need to be on a tripod for this kind of shot.



You can also create long exposure silhouettes by using this recipe: Put your camera on a tripod. Make sure your subject is standing still. Make sure there is no light shining on them from the front. Take your exposure, and then start light painting light from behind them, shining the light in the direction of the camera. I remember being told from this photographer that he used a battery operated fiber optic light that constantly changes colors to create this photograph. That link might not be the exact tool he used but it was the closest I could find from what he described.



Glow Sticks and Cathodes



Glow sticks and cathodes give light painters a very long strip of light to work with. You can rig a cathode light up to batteries if you want to, but I think using a special light called the V24 Light Stick is better because it is already built to take batteries and is less delicate. That specific link is probably the best price you will find for the V24 on the internet. They also come in red, green, white, and a special version that changes colors. The color changing one is out of production and is extremely rare. Christopher Renfro (photo left) is reproducing the design of it and will be reselling them.

Note the image on the right: If you have a light toy that can quickly turn on and off, you can make "copies" of the light by simply turning it on for a split second, then switch it off, move it, and repeat. This woman used this technique by tracing a straight line down her face while turning the light on and off.





Glow in the Dark Paint

This is another unique long exposure by toledophotographer. He had an assistant paint a person with glow in the dark paint and had him walk under a black light. This idea is gold! The person was standing for about 10 seconds in the back, then slowly walked over closer to the camera and then stood for another 10 seconds or so.

Pop-Up Flashes and Off-Camera Flashes

A trick you can do with an external flash is to take a long exposure in the darkness and fire the flash multiple times on your subject in different areas in the frame while the exposure is taking place. You will end up with “copies” of your subject. Doing this also causes your subject to look like a ghost.



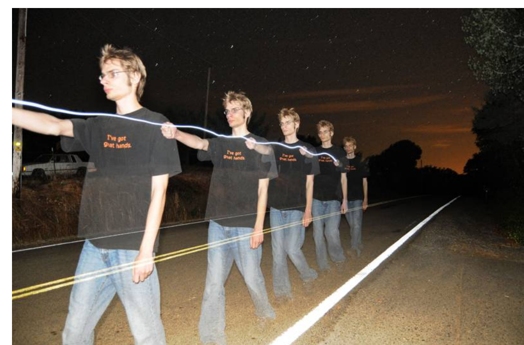
If your camera is a mid-range or high-end DSLR, it might have a repeating flash mode. On my Nikon D300s, if you go into the flash options and select *Flash control for built-in flash > Repeating flash* in the menu, you are presented with adjustable variables such as the output level, how many Times it flashes, and the Frequency rate in Hertz. A party strobe light has the capability to do the same thing, but the amount of light output coming from party strobe lights is usually much less.



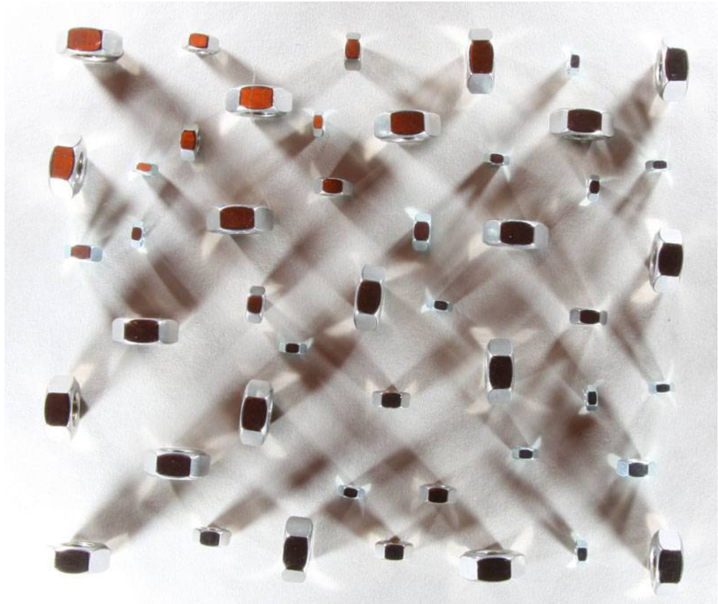


Note: The photo above was actually light-painted with a flashlight iPhone app, but the concept is the same.



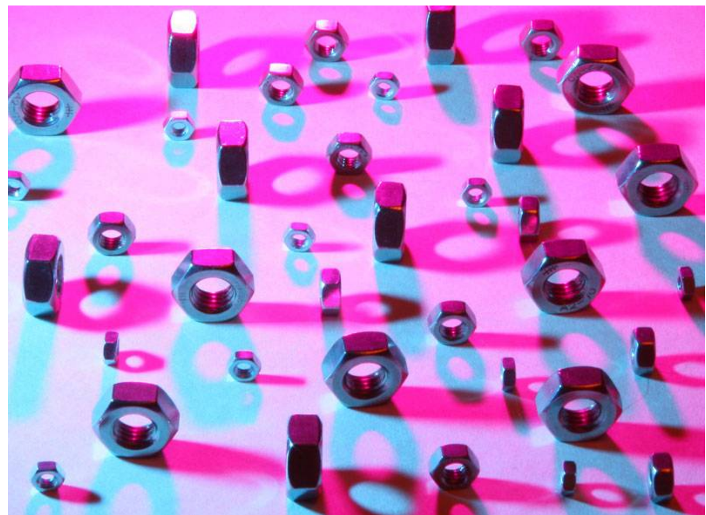


During a long exposure, you can also fire the external flash around your subject several times to get multiple directional shadows. Here's an example of a bunch of hex-nuts using this technique. The flash was placed low to the ground and fired four separate individual times from all four corners.



Flash Gels

Flash gels are little plastic covers that go over the flash (or regular flashlights for that matter) to change the color of the light coming out of the flash. With multiple colored gels, you can put different ones over your flash and then shoot bursts of different colored light in the environment that you are in. You can get a ton of flash gels for only $4 at Amazon in this sampler called Roscolux.









Note: the colors around the walls wasn't made with flash and gels but rather a colorful LED. The concept of changing colors in different areas of the environment is still the same though.

Flash Stencils

Flash stencils or 'light stencils' allow you to accurately shoot light from an off-camera flash through a stencil that is either cutout through cardboard or simply printed out on paper. I'll go over both methods below. Each method isn't really aren't that different, so the results are more or less the same. You may also find this thread on Flickr to be just as informative.

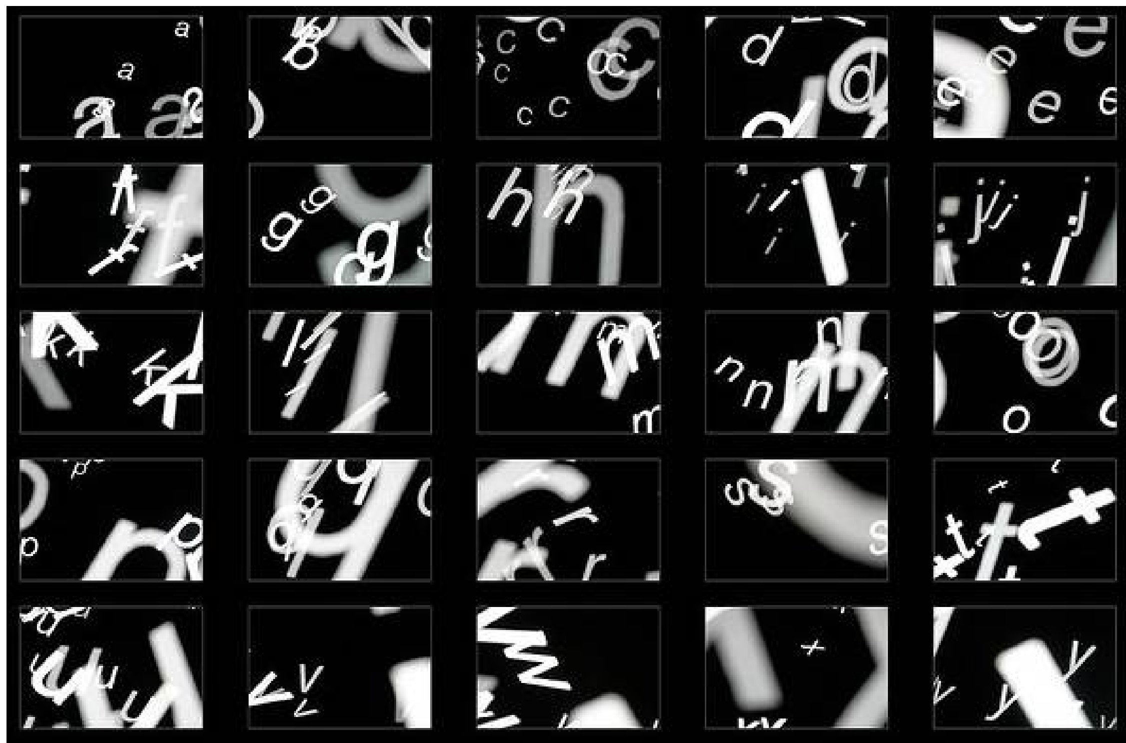
The Classic Stencil Cut-out Method

Take an empty cereal box, open the top and bottom of the box and lay it flat. Draw your design on it with a marker and then cut it out using an Xacto knife. If you are drawing letters or designs with holes in them (for example an O, P, B, D, A, or R) cut the middle part out first, save it, and then cutout the rest of the letter and throw it away.



Once you have all of your letters cut out, tape a sheet of opaque paper (e.g. tracing paper) inside of the box so that the light coming from the flash has something to hit and bounce off of. Tape or glue the letter interiors onto the paper. The picture to the right was my first light stencil. As you can see, it is pretty.... *cheap looking*. The blade I was using was dull! It wasn't my fault! I even used regular copy paper because I couldn't find any tracing paper. I still have this light stencil and it works, even though it looks like a kindergarten project.

Note: It would be ideal if the exterior of the box was spray painted black to reduce ghosting, and the interior was lined with tin foil to reflect more light. This isn't essential, but it IS a step up if you want to go pro.



The Printer Method

The first step is to print out a stencil design that you like. The best ones contain black around all four edges. You can invert the design in Paint or Adobe Photoshop software by pushing CTRL+I, if you wish. If you are using Paint in Windows 7, just make a selection, right click, and then hit Invert Color.

Once you have found your image and it is ready, print out 2 copies of it. You need 2 stacked on top of one another in order to block out the light from coming through the black areas. I used tape to hold them together by the edges, but double-sided tape is even better because you can just put it in between each sheet of paper.

Next, cut out a big hole in your cereal box and tape the design inside of the box. You may have to crop the paper using scissors in order to get it the right size to fit inside the box. Here is what mine looks like:



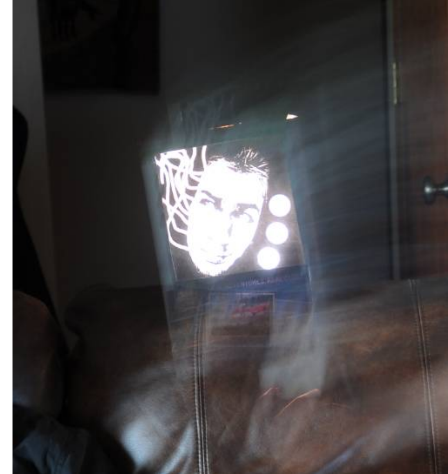
As you can see, the original cut in the box was too long for the image that I printed out, so I took two cards and taped them to the front and back of the paper to block the light from coming through that area.

Then I simply taped up the sides of the box so no light would leak out. The design was pretty much ready to go, except I needed to fix up the place where the flash goes in (3rd picture).

I see this part as being optional, but sealing up the opening where the flash goes in is a good idea if you really want your stencils to look clean, especially indoors where the environment is more reflective. The specific flash that I am using has a rotatable head, and it just so happens that there is a slit of open space between the top part and the bottom part of the unit that is just big enough to wedge a piece of cardboard between the plastic. Now, your flash might not be like that, so what I would do is cut a hole along the bottom of your cereal box just big enough to let the flash go through, and call it good enough.

There are other fancy ways of building flash stencils (see the link mentioned at the beginning of this section), but I think the cereal box way is easy, cheap, and quick... even though it looks a bit tacky. You can also print the designs out in color!

In case you are wondering, the stencil of the face in is the same photograph you saw of me on the "Forward from the Author" page. I got it to look like a stencil in Photoshop by first applying a Gaussian Blur by clicking *Filter* > *Blur* > *Gaussian Blur* (this is optional, all it does is smooth out the lines). Then, to make it a 1-bit black and white image, I simply went to *Image* > *Adjustments* > *Threshold*... I then took a hard black brush and made the background black. The only reason why I included the white squiggly lines and dots around my head was to save printer ink.

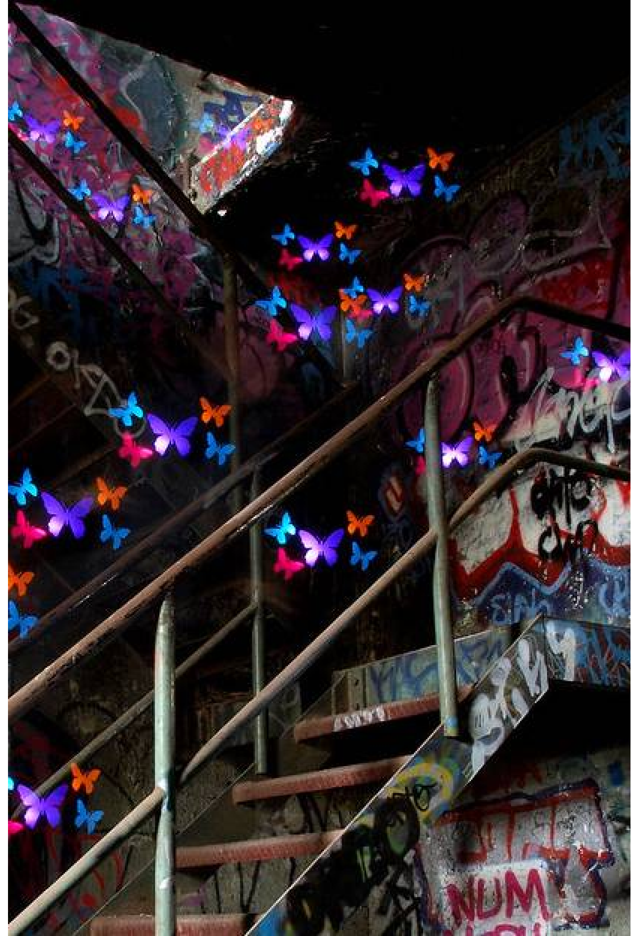


The photo to the right was a long exposure of about 10 seconds. The window was open and the TV was on behind the camera. Because the box wasn't black, it reflected some light and made a "ghosting" effect. You may like this effect, but usually it is undesired.

In order to completely eliminate any ghosting from occurring, just take your photo in a very dark environment. There was no ghosting in the image below because the only light that was turned on was my computer monitor, and that was *behind* the stencils.









City Lights

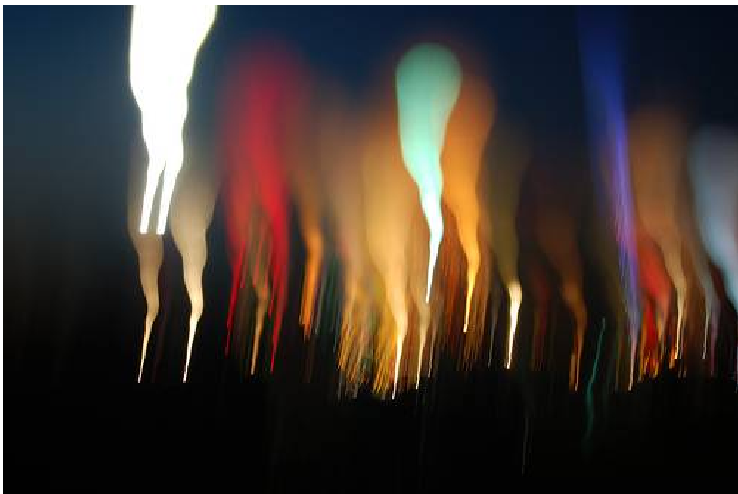


Traffic has always been the classic example of long exposures.
A tripod must be attached to your camera in order to take these shots. Make sure to take off any filters you have on your lens to reduce flare and hotspots. Try messing around with the white balance to change the color of the scene.
30 sec / f18 / 50mm/ ISO 100



Okay I lied about the filter thing... sort of. There are star filters available that turn the streetlights into stars/flares. You can buy the filters with different crossings. 4X, 6X, and 8X are the most well known. The image on the left was taken with a 6X. Do a search on Amazon for cross filter or star filter and you can take a look around and get the one you like.





These are city lights from a far distance.

While taking your long exposure in BULB Mode, tilt your camera up and down (or from left to right) while moving your focus ring in and out of focus at the same time. The camera records the light turning from sharp points into big blurry bokeh blotches. This effect is best done when using wide apertures. F6.3 / ISO 200 / 55mm



If you have a tripod on you, and you’re in an amusement park of some kind, long exposures of rides always come out great. Ferris wheels are a classic example, but the effect works with any ride that moves with lights.

For a long exposure photographer, going to an amusement park at night is like a kid going to a candy store. There are so many different lights to take pictures of!



This is a long exposure inside of a car interior. This will obviously only work when you are driving through a city with lots of lights.

In order to get a shot like this you will need to have your camera on a tripod or at least have it resting on the back dashboard.

I've seen people extend the middle leg out and have it on the floor, then take the two short legs and tie them down to the back seat. Check out this tutorial on Flickr to see what I mean.

You can use an external flash or a flash light to light up the interior of the automobile. You can also take shots from the *outside* of the vehicle while it is moving. I've used the sun roof before, and I've also stuck my camera outside the window on a monopod to get rare angles. Use the camera-s self-timer or a remote if you do this. Manual focus might also help.

Fire

This section will discuss fire dancing, sparks, sparklers, and steel wool. Ready.... aim....

Fire Dancing!



Fire is a pretty big element in nature that you can use to your advantage. If you ever see a fire dancer and you happen to have your tripod and camera on you, take some long exposures. The photo above is by Brent Pearson. You might be wondering why you can see that the body is frozen in the photo above, but not the ones below this text. It is because Brent used a flash to freeze the motion. No flash was used on the photos below. More about this is in the Motion Blur section later in this module.





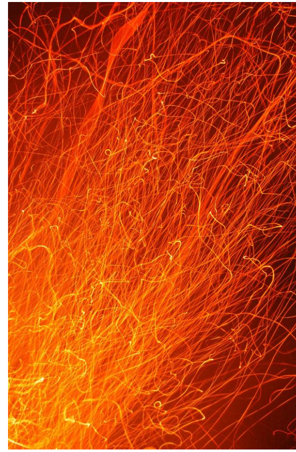
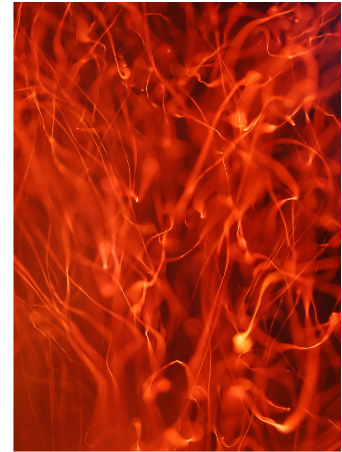
I wouldn't recommend doing complex fire dancing yourself, but you can try getting a torch and put some white gas, Coleman fuel or lamp oil on it and do some long exposures with that... That is how the photo below was made. The photo on the right was made with a butane torch.







Sparks

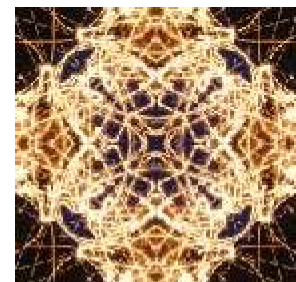



These two photographs were sparks coming out of a burn barrel. When the material that is burning collapses, sparks will swoosh up into the air all at once. I used an exposure time of 1.5 seconds and an aperture of F5.6. The second image was the same thing, except I spun the focus ring in and out of focus. Half the sparks are really blurry and the other half are sharp. It looks like hot dreamy lava... perfect for a background texture.

Sparklers



This is just a standard long exposure of a firework sparkler in motion, taken on a tripod. Keep in mind that if you use a flash, the person holding the sparkler will show up in the photograph. Also keep in mind that if you shoot at F22, the sparks will be isolated on a black background, but if you shoot with a wider aperture, the environment around the sparkler will be lit up by the ambient light it gives out. This shot was 7 sec. / f22 / ISO 200



If you want to learn more about long exposures with sparklers, here is an article and video tutorial I created that describes how to take photos of them in more detail. That link also has a secret trick that will show you how to make psychedelic patterns with them in Photoshop software.

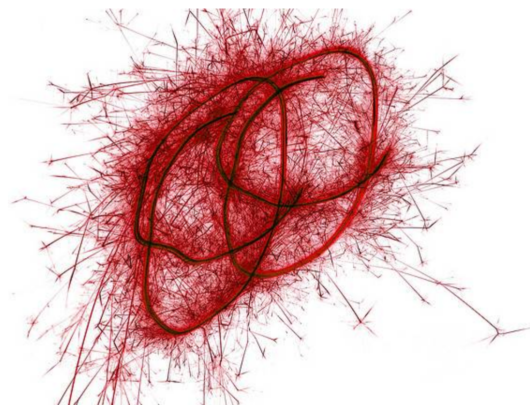


Sure, you can use sparklers by themselves in empty dark space to create abstract photos like the ones above, or you can trace objects with sparklers instead. Cars, bicycles, and sometimes even human beings make great subjects. 7 minutes, ISO 100, F18.



If you are photographing people, remember that the long exposure will record the sparks of sparkler, and the flash will freeze the person. It is best to have the flash fire near the *end* of the exposure and not the beginning.





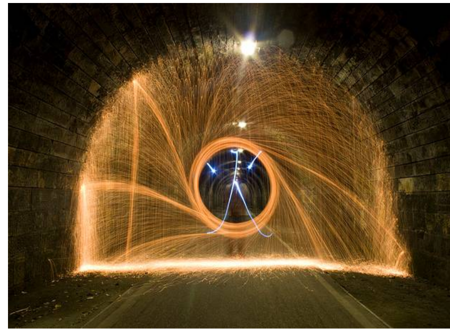
Steel Wool (by Chris Reynolds)



If you want to really heat things up, pick up a package of steel wool, tie it to a chain, heat it up, and take long exposures of it spinning around. The sparks go *everywhere*. A popular composition people use is to spin it inside of a tunnel, because the sparks end up hitting all four sides of the tunnel – Sometimes they even bounce off the walls.

Here is a tutorial on using steel wool, brought to you by Chris Reynolds from Flickr:

Please note I in no way endorse or encourage people in any way, shape or form to do something as fricking cool (sorry - dangerous, I mean *dangerous*) as the following playing with fire. This tutorial is meant for information only and should not be used.


Really - who wouldn't want to take photos as cool as these: ;)

SAFETY FIRST
You're playing with *FIRE*, people. Steel wool burns pretty quickly so you're generally OK; when it lands on you it'll burn out pretty quick. I've seen huge scatters land on a person and not leave any marks: BUT wear clothes you're not worried about getting burned patches in. Also wear a hood or a hat so it won't get in your hair. Goggles are a good idea, too. I've done a lot of burns and so far have only picked up one small scar on my right hand, but as it says - SAFETY FIRST! DON'T do this in a big patch of dry grass / indoors / amidst a pool of petrol.

What you need:
- Steel Wool: fine grade works best, but you can use medium if you wish.
- 9V battery (that's the square one) - A length of chain (I've also seen reference to cages forthe end of the chain, but it's not what I use) - A hoodie or a hat (so the steel wool showering down doesn't catch fire in your hair) - Fire extinguisher (for super safety) - Tripod for camera - long exposures, so hand held is not going to cut it - Remote release for the camera if possible but timed exposure will work, too.

As I say - it's a fairly easy job.
1 - Cut or rip a length of the steel wool - I use about 40 cm strip for each burn, but the shorter it is, the shorter the burn and vice versa.

2 - Tear it up the middle (so it kind of looks like a pair of trousers)

3 - Double up your length of chain and wrap the steel wool around the center point. Do this by putting the 'crotch' of the pair of trousers in the center point and then wrapping each 'leg' in counter directions around the chain and each other.



TECHNIQUE: Experiment a bit with different knots in the wool, teasing out little bits into tapers that stick out, wrapping the ends around each other; that will give greater / lesser surface area and give you bits that burn faster and slower. That's also how you get 'bombers' - meteor like chunks that come out of the spin.

A second technical point is to use different gauges of steel wool which will burn at different speeds. I normally have some minions - I mean friends - round about and we take turns on the burn / setting the camera off.

4 - Get a grip of both single ends of the chain so the lump of steel wool dangles or is lying on the floor (lying is better for control)

5 - Have a practice swing - around your head for a nice fan / umbrella or in front / behind you for a portal-like circle of fire. Infinity-spin for extra cool points.

6 - Set up camera. A good tip for getting focus is to shine a torch on yourself and use that to get auto-focus to work, then switch to manual.

TECHNIQUE**:** Best way forward is with a wider frame. You can always crop it - I'm pretty sure even the most rabid Straight-Out-Of-Camera allows for crops. That said, a frame full of fire can be pretty cool too. Experiment...

7 - Either trigger the release yourself, or get your minion / friend to do it.

TECHNIQUE: Aperture and shutter speed are variables. With most light painting, fire, torches, whatever, it depends on the environment - whether it's lit already or in darkness. A general note is that the higher the aperture, the thicker the lines of fire will be. I'd go ahead and experiment. White Balance alters the fire lines from yellow to white, dependent on how warm / cold you have. Tungsten's a good setting if you want mostly white, Shade or Cloud for yellow.

8 - Take the 9V battery and stroke the contact points along the wool. It should start to spark almost instantly and then burn slowly.

9 - Being careful and *thinking about what you're doing* - swirl it around. The faster you spin it, the further the sparks will fly and the harder it'll burn; it's the spinning part that feeds the steel wool oxygen and makes it burn quickly.

TECHNIQUE: The actual burning lump of wool usually shows up as a thicker yellow line in amongst the scattering shards of wool. I've used that to reasonable effect:



10 - Close shutter at appropriate moment, usually when burn is finished.

11 - View the photo, think, "That's awesome", jump up and down and shout "Again, again!" *Note that the bit of chain will still be pretty hot in the middle.*

TECHNIQUE: Location, location, location. Burns can look kind of same-ish, so go hunting for some awesome locations. Water is extremely cool as it gives great reflections of the fire (plus it's got the whole 'elemental' theme going for it. Tunnels or more enclosed places are also cool as you get bounce back from the sparks. Enjoy and play safe! REMEMBER - IT'S ALL FUN AND GAMES UNTIL SOMEONE LOSES AN EYE.



Tip: You can always change the colors of the sparks inside of Adobe® Photoshop® software by going to *Image* > *Adjustments* > *Hue/Saturation*. In addition to that, you can also create a new layer on top of the layer of the original photograph and add a colorful gradient filling it up, and then set the Blending Mode to *Color* or *Hue*.

EL Wire



EL wire is basically a strip of glowing flexible wire. When it is "draped" and "dangled" across the frame during a long exposure, it will look like smoke. If you are interested in picking up some EL wire for light painting, check out this thread. Also check out CoolNeon.com.







iPhone and iPad Apps

There are several apps for the iPhone, iPhone Touch, iPad and Android specifically designed for light painting. You can type in words and then have them projected onto the pixels over time as you drag the screen across space to give an impression of real 3D light painting. Some of these include:

Holographium

Holo-Paint

Penki

Aurora Bulb Android App



Light Painting Techniques

Here are a bunch of “tips, tricks, and techniques” you can use in light painting.

These tricks apply to any of the light sources listed in the previous section.

Inverting

You can invert any light painting by pushing CTRL+I on the selected layer in Adobe Photoshop software.



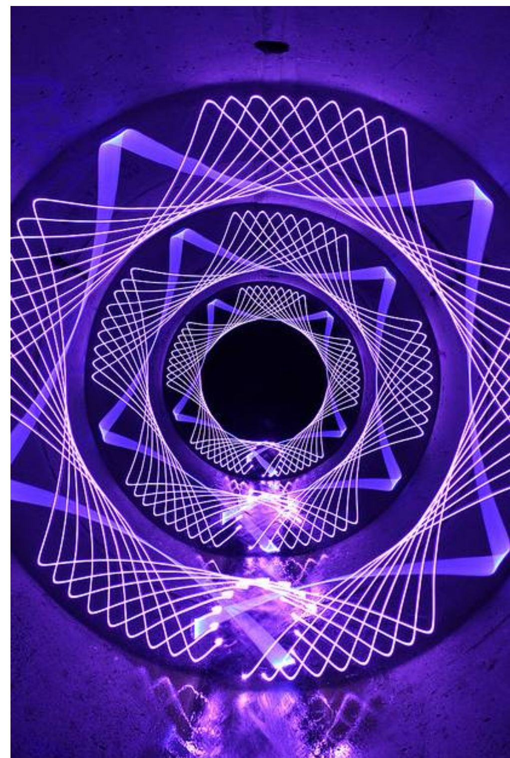
Camera tossing and abstracts

You can literally throw your camera up into the air and spin it while it is taking an exposure and then catch it when it comes down! This works well with wide angle lenses. You can also just wave your camera frantically to get long exposure abstracts. Try zooming in and out and moving the focus ring while doing this.



Lights on wheels and hoops

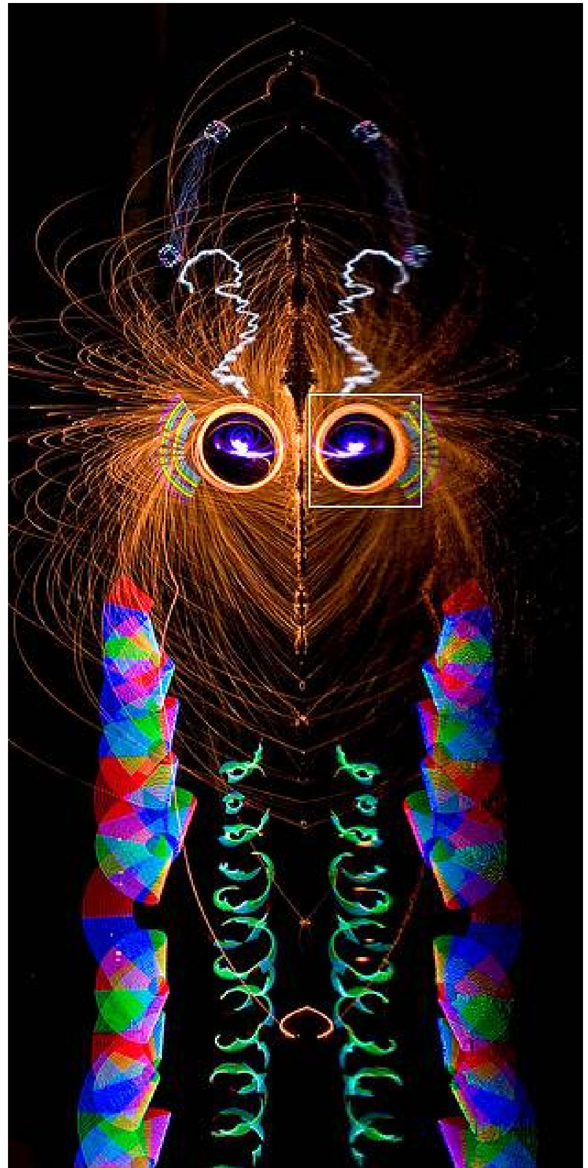
Putting LEDs on wheels and hoops can generate some pretty cool designs. The image on the right is a long exposure of a bunch of LEDs attached to a wheel inside of a tunnel.

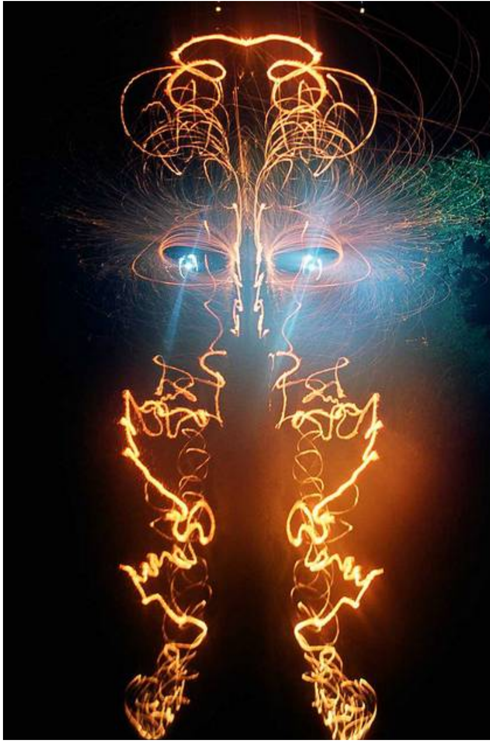


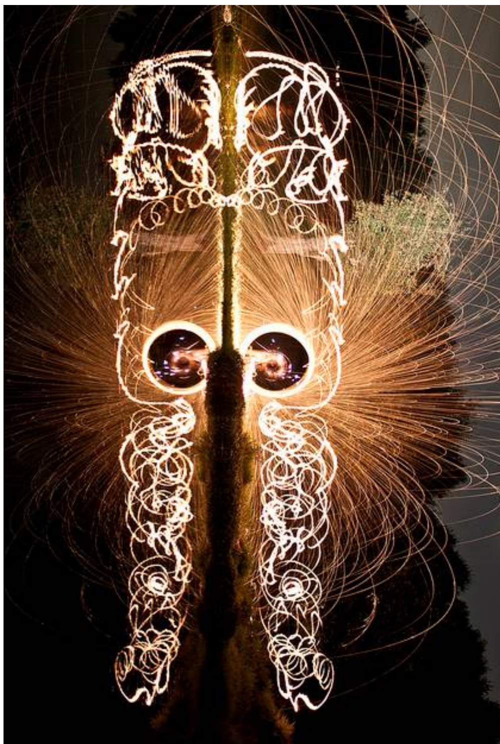


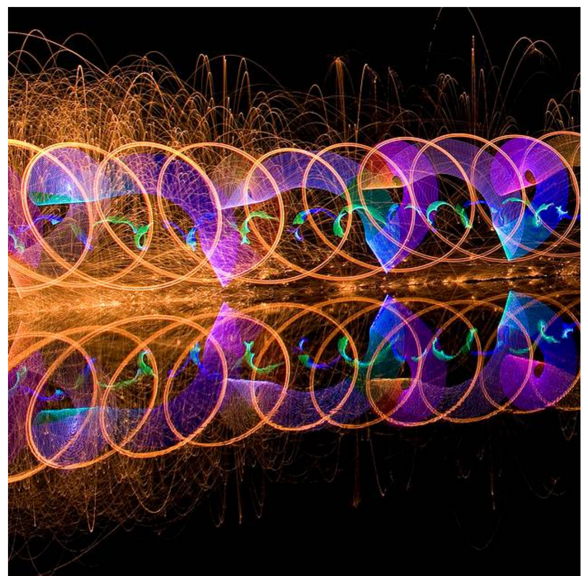
Reflections and mirroring

This is a technique that Tackyshack is well known for. Do a light painting over a body of water (like a pond or something) and then you will get a naturally symmetric light painting. You can then rotate the photo 90 degrees to create a vertically symmetric designs. The same technique can be done with mirrors.









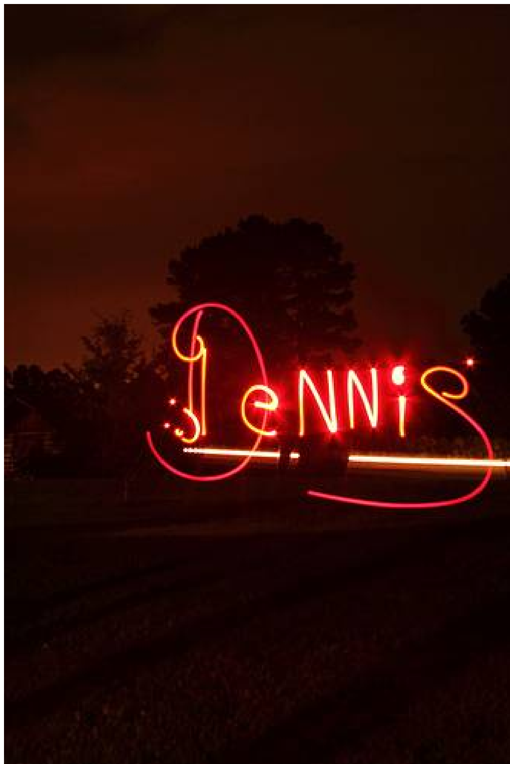
Writing Text

This might seem kind of obvious but it's worth pointing out. LEDs are great for writing letters! Keep in mind that the alphabet picture on the right took a long time to create. Each individual letter took the photographer about 7 attempts each before the final result was compiled in software.













Combining different lights

And of course, lets not forget about combining all the different kinds of lights and using flashes. These images were taken with two 80x120cm soft boxes on both sides of the model. The short flash burst freezes the mode to render them motionless, and then the rest of the exposure can be painted with light.







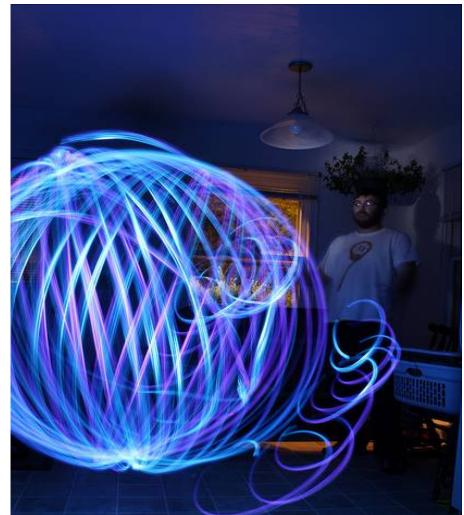
Creating Orbs

Orbs are popular among the light painters on Flickr. In order to create them, tie an LED to a string/rope then place a quarter on the ground and spin the light around in your hand while your body orbits around the quarter. Make sure the light passes directly above the quarter every time to ensure your orb comes out clean. Watch this video tutorial if you are having a hard time understanding how it works. This takes a lot of practice if you want to get them looking really good. The best tool for orbs is to have LEDs on the end of speaker wire. You can learn how to rig these up here and here.











Creating Domes

To create a dome, simply attach a light to the end of a broomstick and then hold one end of the broomstick on the ground while moving the other end of the broomstick around in the air. Think of the end that is on the ground as a pivot point and try not to move it or slide it out-of-place. You can alternatively put a stake in the ground, attach a rope to the end of the stake and a light on the other end of the rope, but this is more difficult. You can also create a dome by simply putting lights on a stick and then placing it on the ground, then moving the stick on one end to the ground and moving the other end around in a rainbow pattern, just like this.





Blending Multiple Exposures

This technique will give you lots of options in Adobe Photoshop software. Your camera will need to be locked up on a tripod to ensure that it won't move. Here is how it works: First, take several exposures with different lighting conditions. In this example I am using a garden. Each shot was 30 seconds long and each had different things lit. The first shot is just ambient light coming from the LED to illuminate the foreground, the second shot is me going crazy with the LED, and the third and forth shot has the LED behind the bird bath only.



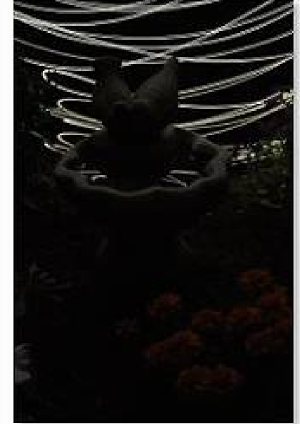
D3S_4601



D3S_4602



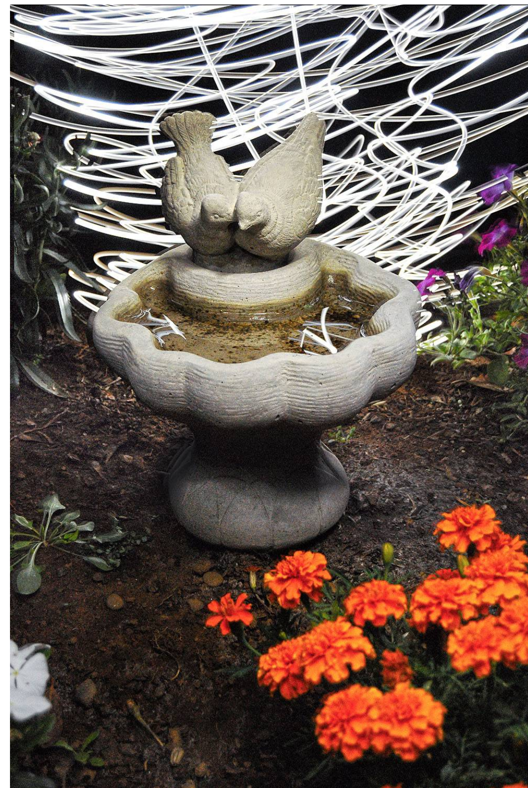
D3S_4603



D3S_4604

Once you have taken multiple exposures with different 'lightings', open Photoshop and click *File > Scripts > Load Images into Stack* and select your images. Once they are all loaded, go into the layers window and change each layer's blending mode to Lighten. Once you do that, you'll see all of your exposures combined! Pretty cool huh? You can also change the Levels and Curves on each individual layer and even disable the layers that you don't want. Click *Layer > Flatten Layers* when you are done and make some final adjustments.



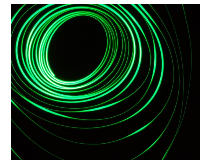


Light Stitching (Unofficial term)
This is a great technique you can use to create very complex light paintings. It falls more into the 'digital art' category but I thought it wouldn't be a bad idea to mention it in this ebook. It's all "special effects" after all. What you do is take tons of separate shots of different light painting designs. The image on the lower left was created with dozens of different photographs. Each swirl, curve, dot, and line are all separate photos.

After you have taken all your shots, load them up into Photoshop by clicking on *File > Scripts > Load Files into Stack...* This will put all of your images into separate layers in a new Photoshop document. After that is done, change the Blending Mode on all the layers to Lighten, Screen, or Linear Dodge (Add).

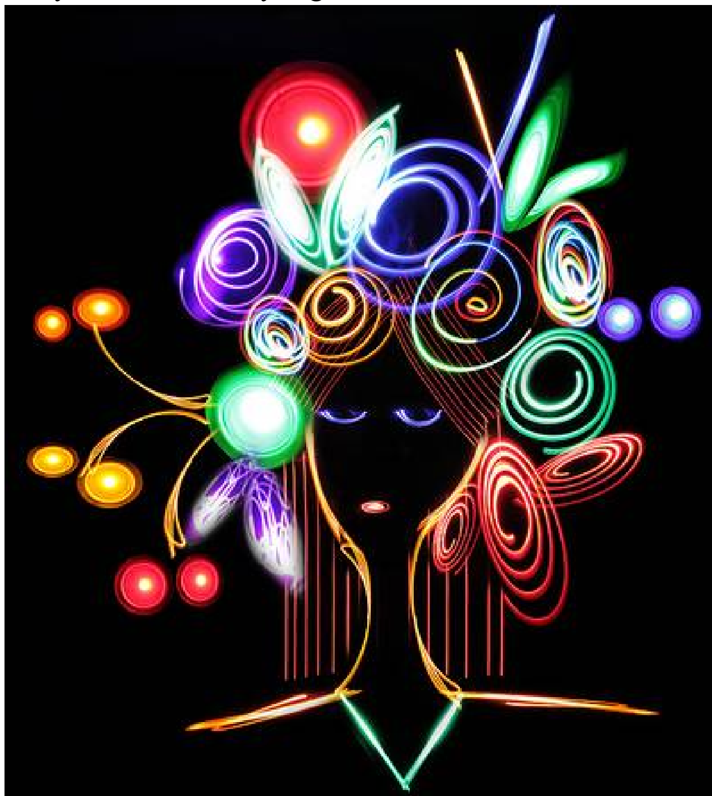
Now you will have to move around, reshape, and resize each photo to create something like a face, animal, building (ie something recognizable!). To do that, simply select your layer and push CTRL+T (CMD+T for macs) to enter Free-Transform mode. You'll now have the option to rotate, warp, move, scale, distort, and add perspective to the layer/selection. Right click on the selection to pick which function you want to use.

When you are all done putting all the layers together just the way you like them, click *Layers > Flatten Image*. This puts all the layers into one. Then go to *Image > Adjustments > Selective Color* and select *Blacks* from the dropdown menu and then move the *Black* slider up. This removes the background to make it completely black and clean looking -- which is important.



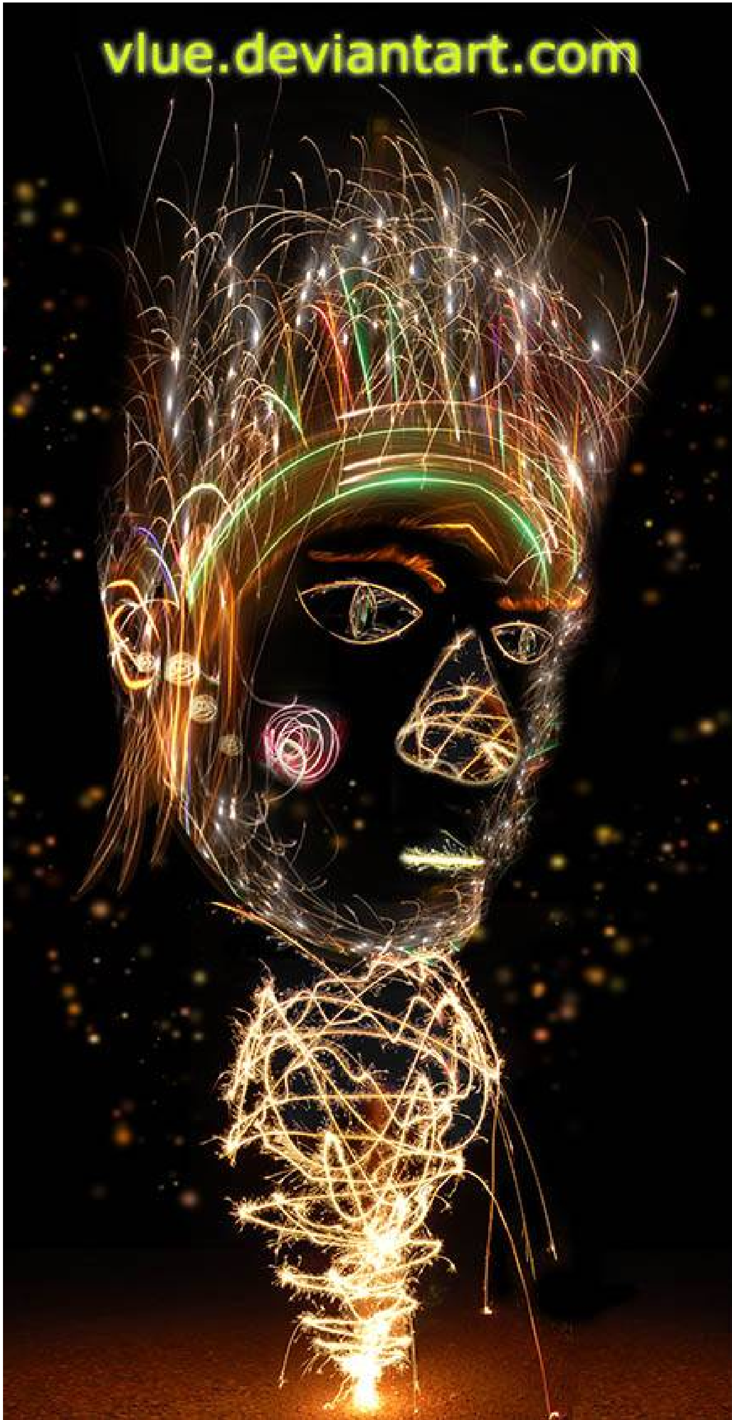
The image on the lower right was created by only using some of the lines from the green swirl long exposure image above it. When in free-Transform mode, the Warp function was primarily used to re-curve each duplicated line. This takes at least one hour to complete and you have to use the eraser tool to smooth out the ending of the lines so they blend smoothly together.







You can also create abstract patterns with this technique. In order to make things symmetric, simply duplicate the layer, change the blending mode to Lighten, flip the image horizontally and/or vertically and then overlap it with the original layer. The image on the right is a good example of this. Both of the images below were created with a bunch of different long exposure photos of fireworks.





Light Painting Perfect Circles (by Dennis Calvert)



RGB strips are great because you can light paint perfectly parallel lines that are smooth and precise. This is great when you want to make perfect circles. Check out this tutorial by Dennis Calvert to learn how to do it!:

What you need:
1. The stand from a utility light.
2. A paint roller.
3. Lights.

Cold cathodes and LED strips work nicely. The LED bar I am using in these photos is no longer manufactured...but {tcb} still has a couple for sale. If you want one, you had better get it now! These things are awesome for light painting and very rare nowadays.

Step 1:
Tape your lights to the paint roller.



Step 2:
Stick your paint roller on top of the light stand



Step 3: Move the paint roller around in a circle. **Bam!** You're done. Wasn't that easy?

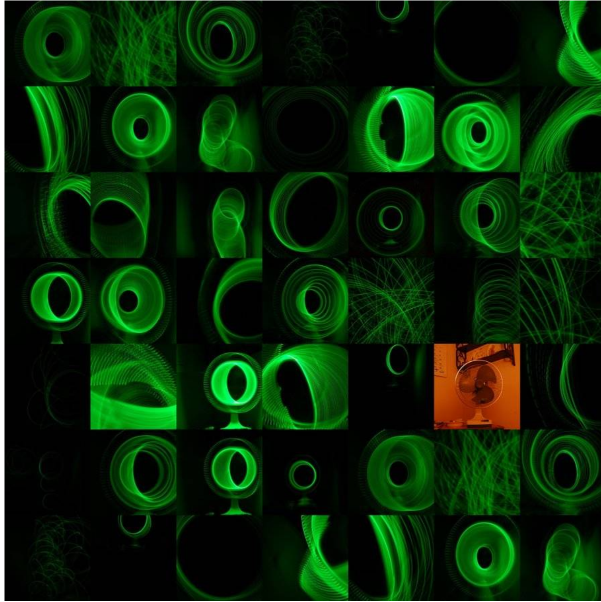






You can also put a strip of LEDs or any light toy onto a fan to create a perfect circle!







Textures

Try waving your camera frantically while aiming it at a pile of Christmas lights laying on the floor to create scratchy textures that you can then overlay on top of other photos.

Experiment using the smallest aperture you have available on your lens and the lowest ISO number. This ensures that you are only capturing the streaks of light coming from the Christmas lights and nothing else in the room.

Well, I hope you enjoyed this part on Light Painting! The next section will be going over generic long exposure effects.

If you need any additional help or inspiration, there is a Flickr group called Light Junkies that has tutorials on light painting and is probably the best resource on the internet to find more information. You can talk to the people there, ask questions etc. There are links on the main page and on the discussion boards that are very helpful, including a bunch of Do-It-Yourself projects for making homemade lights.

Here are some other resources on this subject if you need any more help or inspiration:

Light Junkies Flickr Group
#Light-Painters DevaintART Group
DIYPhotography.net Light Painting Section

Here are some really cool light painters as well:
{ tcb }
tdub303
tackyshack
Poole-shooter Cindi
Dennis Calvert (and his gear)
TxPilot (and his gear)
jedimind
DoctorTongs
lightmechanics
jannepaint
Crack Light District
Fiz-iks
CFYE







Lightning

This example is obviously lightning. I find that a lot of people on Flickr use F8 at ISO 200. Using long exposures (like 5 minutes) is great because you can capture multiple strikes of lightning in one frame, right in your camera. However, because super long exposures introduce noise on the cameras sensor, you can help eliminate that by just taking a bunch of 30 second exposures one after the other, and then stacking the frames in Photoshop and using the Lighten, Screen, or Linear Doge (Add) for the blending modes.



If the lightning you are photographing is striking in an unpredictable way and you don't know where it will hit next, simply zoom out to a wide angle. You can crop the photo later in Photoshop if you want a better composition.

Notice that this image has the beautiful water reflection underneath the lightning. This makes a great composition because the reflected light illuminates the environment almost twice as much.
2 sec / F5.6 / ISO 100



If you have a lens with focus markings on it, just set it to Infinite and your ready to go!
No more auto-focus hassle.
This was a 7 minute long exposure.

Motion Blur

Motion blur effects occur when the shutter speed is between 1/50th of a second to 1 second and something is moving in the frame when the exposure is taking place. Now, this may seem kind of obvious, especially after going over light painting, but motion blur is more useful during the day than at night and special light toys don't play as big of a role. Here are some examples of blur:

 Subject is stationary. Camera is stationary. 1/6 sec.	 Subject is moving. Camera is stationary. 1/6 sec.	 Subject is moving. Camera is moving along with the subject. 1/10 sec.



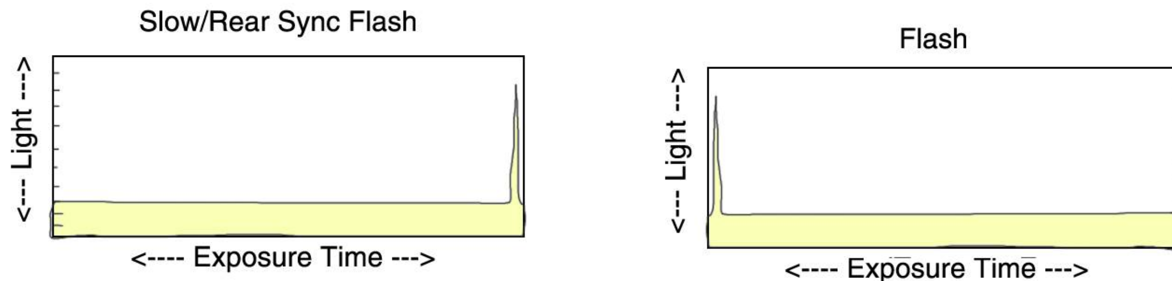






Now let's introduce some on-camera flash into motion blur. On-camera flash will allow us to freeze our subject but have the background motion blurred.

Cameras will sometimes give you the option to assign the flash to go off at the beginning or end of the exposure. In most cases it is best to have the on-camera flash flash at the *end* of the exposure. Check your instruction manual to see if your camera has this option; it is usually refereed to as “rear sync” or “slow sync”.



As you can see in the diagrams above there is a very narrow but very significant burst of light at the beginning of the exposure. This is the flash burst coming from your on-camera (or external) flash. The second diagram shows the same thing, except the flash burst it at the end of the exposure. Throughout the rest of the exposure, we can see that the light remains constant; this is the constant **ambient light** that is shining on the environment (light coming from the sun, lamps, etc.).

Subject is moving. Camera is moving with subject. Flash fires at the end of exposure. F6.3 / 1/5 sec. Because of the shorter shutter speed, a significant amount of ambient light is eliminated. Why doesn't our model look blurry? Because the flash froze him at the end of the exposure, that's why!	Subject is moving. Camera is stationary. Flash fires at beginning of exposure. F3.5 / ½ sec. Because of the longer shutter speed (and wider aperture), more of the ambient light is able to go through the lens and hit the camera's sensor for a longer of period of time. This makes the environment more bright. Keep in mind that the wider aperture also makes the light coming from the flash appear brighter.

Check out 13 great slow sync flash images on Digital Photography School.

Using Filters to Increase Shutter-speed Duration

You can also create long exposures of landscapes during the day by using a tripod and an extremely dark filter that attaches to the front of your lens The filters I recommend using are B+W filter, an ND400 filter (I'd really recommend this one), or even an Infrared filter. Taking long exposures during the day is useful for blurring water, blurring clouds, and even removing moving subjects like people and cars from the scene. I'll show you examples of all of these methods below.



Long exposures are excellent for ocean waters splashing against rocks. The longer the exposure, the more misty the water will look.

Depending on how dark your filter is, you'll sometimes need to make sure to get the scene in focus before putting the filter on, and then switch it to manual focus. We have to do this because sometimes the camera can't "see" what is going on.

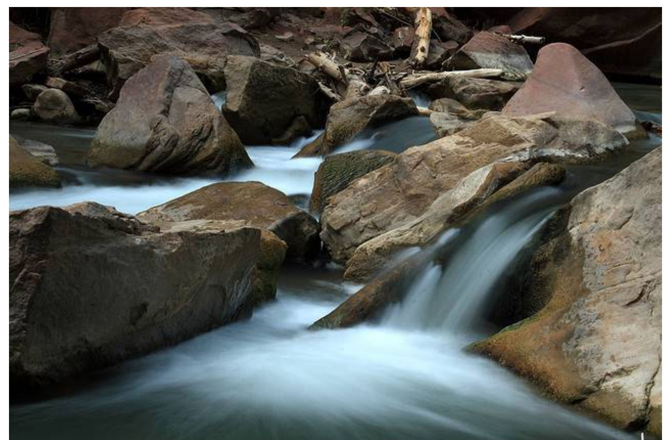
Switch to shutter priority mode (or manual mode if you are comfortable with it) and make the exposure as long as you can get it without overexposing your image.

If you find that your images are coming out too bright, make sure you are using the lowest ISO number possible (something like ISO 200 or lower), and the largest F Number you can (something like F22).

If you want to take exposures longer than 30 seconds, you will either need a cable release or a remote, depending on what camera you have. More explanation on 'going past 30 seconds' in a single exposure is covered in the Star Trails chapter.

Blurring Waterfalls and Beaches with Long Exposure

Long exposures of waterfalls create that 'soothingly smooth' effect that is very popular. To get the smooth water effect, you should have your shutter speed set to anywhere from 1/8th of a second to 30 seconds or longer.



Also keep in mind that pressing the shutter button causes camera shake, thus making your picture a little blurry. In order to eliminate this completely, I use an RF602 wireless remote for my camera. This way I can take a picture without touching the camera at all. "Mirror lock up mode" or "exposure delay mode" also helps reduce vibration. Just use your camera's self-timer if you don't have a wireless remote, cable relate, or mirror lock up mode.

Waterfall Long Exposure Example Chart:



15 sec ,



5 sec ,



1sec ,



1/5 sec,



1/8 sec,



1/10,



1/30,



1/80,

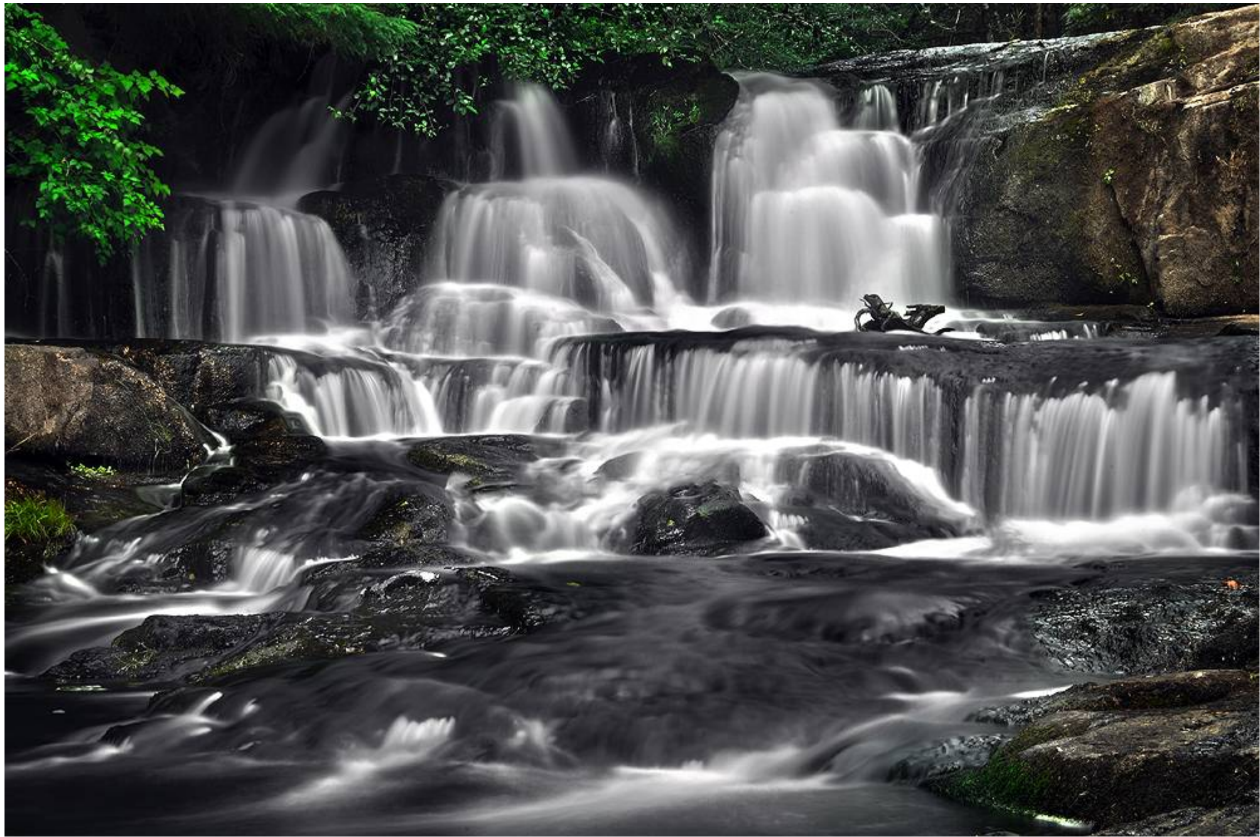


1/200,



1/1000

As you can see, the water becomes more defined when the shutter speed gets faster. I can literally see the form of the bubbles and splashes at 1/1000th of a second even though they are still a little blurry. The first six images have a green tint to them because I forgot to set the white balance to compensate for the ND8 filter I was using. The speed of flow also plays a roll on how smooth the water will look.



The photo above is another example of how long exposures of waterfalls create that smooth, soft glow to them. This was captured using an ND8 filter on my lens and is processed with a technique called HDR to enhance visible shadows, highlights, and color. I will talk about HDR later in this ebook.





Blurring Clouds with Long Exposure

Because clouds move over time, you can capture that movement through the use of long shutter speeds just like you can with water. The sky is usually much brighter than what you see on land, so you may have to wait until dawn or dusk to capture the cloud movement, depending on how dark your filter is. Sometimes there is heavy wind and the clouds move much faster than usual. This can really help you out if you want to capture the blurry cloud effect.

You can also try using a graduated neutral density filter. ND Grad filters are tinted on the top half and clear on the bottom half. This makes up for the sky being too bright, evening out your exposure for both the foreground and the sky.









Blurring People

Remember how I said you can take long exposures to remove people from a composition? Well, I wasn't kidding. In this example the exposure was obviously shorter than 30 seconds. Think of the possibilities though... You could set up your camera in a high place aiming down at a crowd, -- a sea of people -- take a really long exposure and it would just be a big blur. Alexy Titarenko has excellent photographs using this same technique. Take a look at what he has done by clicking that link and looking at his gallery.





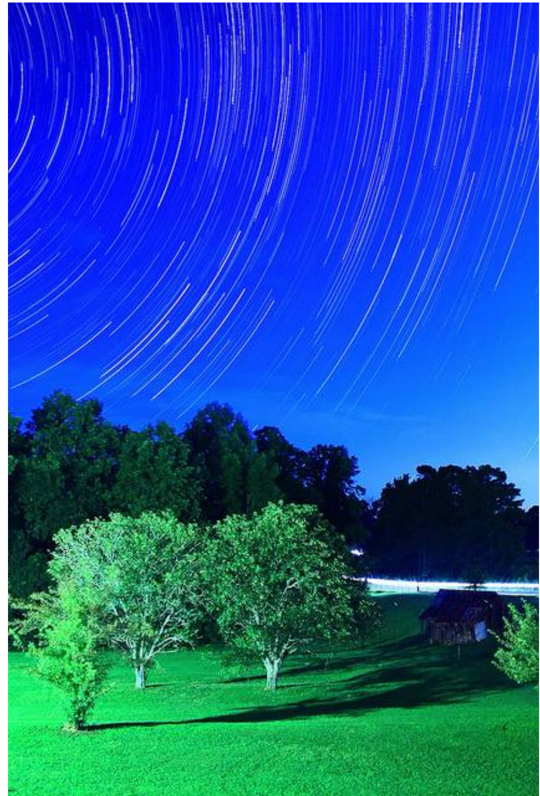
This is a long exposure of a crowd of people walking on a sidewalk with only one person standing still. 1.3 seconds / f6.3 / ISO 200

Long Exposure + Square Format

A technique that seems to go hand and hand with long exposures during the day is to make the image black and white and crop the image into a square. I've seen a lot of photographs taken in this style and find it fascinating. Folks at fotoblur.com seem to appreciate this style.



Star Trails



Star trails are a great challenge because you can't exactly see what your image will look until after you have taken it. In order to take star trail shots you need three essential things: A DSLR with BULB mode, a tripod, and a rubber band and eraser. There are other methods to taking star trails which require more tools, but if you have those three things than you can get away with taking a fine photo.

Find a good foreground and then make sure the sky is clear with minimal light pollution. It will be harder to do fantastic star trail shots in the city because the city light bounces off the atmosphere and causes the entire sky to glow. Ideally, we only want the stars to glow. It is best if there are no clouds around when doing this. Start taking your photo when it is as dark as possible for best results.

In order to prevent your lens from fogging up, wrap some hand warmers around your lens with a rubber band, or get a miniature fan to constantly blow wind onto your lens. I haven't had to use any of those things so far though.

You will need a tripod and a device that can take exposures one after the other. You can take one huge long exposure, but the noise in the image adds up with long exposure times, especially if it is a hot summer night. In order to get around this noise issue, we can take a bunch of 30 second exposures one after the other and then combine them into one image on the computer. Either method is up to you and I will discuss both of them.

It's a good idea to plan your shoot ahead of time because you will be able to see what is in your foreground. Getting just a photo of the sky is boring and uninteresting. Foregrounds (especially illuminated or light-painted ones) will add so much more dynamic to the image.

Pointing your camera in different directions will give you different star trails. For example, if you point your camera North, you will see circular trails as the stars rotate around Polaris, pointing your camera South will give you horizontal trails, and pointing it East or West will give you curving trails across the sky.

Sometimes you will see airplane lights in your photos. You can use the Clone Stamp Tool inside of Adobe Photoshop to erase these marks.

Make sure to turn the noise reduction OFF in camera because it will take a long time for the camera's processor to remove the noise and that drains battery life. If you take a 30 second exposure, your camera will then take another 30 seconds to remove the noise.

Going Past 30 Second Exposure Times

There are different tools we can use for taking star trails:

1) Use an Intervalometer (ultimately this is the best way, especially if your camera has one already built in)
2) Use a remote
3) Use a cable release (best way if you are using film)
4) Use a rubber band and eraser (cheapest, quickest way)
5) Use Camera controlling software on your laptop. (This won't be discussed in this article)

Let's look at each method below to see which one is right for you on the next page:

Using an Interval Timer Shooting mode (or an Intervalometer)



If you are using a higher-end DSLR, your camera should have an interval timer shooting mode (or sometimes called Intervalometer) already in the camera. The intervalometer will allow you to take 30 second exposures one after the other, automatically. We can then take all these exposures and combine them together on the computer. Check your camera's instruction manual or go inside the camera menu to see if it has an interval timer shooting mode. If it does, set everything on manual (manual focus, manual white balance, etc).

If your camera doesn't have a built-in intervalometer shooting mode, buying a timer remote control might work instead. Here is a Canon one, and here is a Nikon one.

Some cameras take longer than a second to write the image to the card, so you will have to set the interval time to be a little longer than 30 seconds. On my D300s, I have set the intervals to 33 seconds in order for it to sequence properly. Go by trial and error until you find the shortest interval time that works. Set your camera up and just leave it out over night until the battery dies or when you go to bed. Then combine the images on the computer (this is discussed later).



Using a Remote to take Star Trails

Using a remote is better for lower end DSLRs that don't have an interval timer shooting mode. You'll need to set your camera to manual mode, and then set your shutter speed to BULB mode. Push the button on your remote once to initiate the exposure, and push it again to stop it.

Not all remotes and cameras are created equal, so you might want to check with a local camera dealer to see if this method will work with your camera. It works with the Nikon D50 for sure, and probably the D70.

Using a Cable Release

Some cable releases have the ability to lock your shutter when in BULB mode so you can take the exposure for as long as you want. If you are using a film SLR, I'd recommend the ACR Cable.

Using a Rubber Band



This method is best when you just want to practice and get the hang of things without spending money on a bunch of extra stuff. Get an eraser and place it on your shutter button, then just wrap it up using a rubber band so it holds the shutter button down constantly in BULB mode. I learned this trick from QQQQcon on YouTube, and then later saw Dennis Calvert using the same thing.

Because all cameras are different, you still might not know what method is best for you. If that is the case, use the rubber band method or ask forums or your local camera dealer on what you should get for your camera. A good resource online would be to search Flickr Groups for your camera model. Join the group and look around to see if your question has already has been answered. If it hasn't, ask. Expect to get an answer within the first 10-120 minutes.

Camera Settings for Star Trails Photos



Now that we have discussed all the different tools for getting past a 30 second exposure, let us simply look at what settings we need to apply when we are actually outside with our camera and tripod.

Focusing: Set your camera to manual focus and focus out into infinity. Your camera won't be able to use Auto-focus in these dark conditions. Take a test shot to make sure your stars are sharp.

Exposure Time and ISO: Now let's calculate the exposure. Take one 30 second exposure at ISO 1600. If it looks properly exposed, just take that 30 seconds and multiply it by 16. If you are using ISO 3200, multiply the shutter speed you used by 32, and so on. The number you get after multiplying the shutter speed you used by the ISO you used will tell you the shutter speed (in seconds) you will need to use when shooting at ISO 100.

Using ISO 200 should be fine when using that same exposure time too, even though it will be a little brighter. This usually works out because the sun is still making its way down the other side of the planet, so it *does* get a little bit darker as it gets late in the evening, which makes up for the higher ISO.

Aperture: What should the aperture be when shooting star trails? I usually use F3.5 on my 18-55mm lens with the lens always set to 18mm (usually I want to capture as much as the sky as possible, so using wide angle lenses for star trails photography is a good idea.)

White Balance: If you are combining multiple frames, using anything other than AUTO WB will ensure a constant WB in each frame. If you are doing one huge long exposure, then it is okay to use Auto WB.

The Multiple Exposure Method

If you end up taking a bunch of 30 second exposures, here is how to combine them on the computer:



Download the Startrails.de program and run it. Under 'File' you will see "open images" and "open darkframes". A dark frame is a reference photo for Startrails.exe to reduce noise. The darkframe needs to be taken with the same shutter speed, aperture, ISO, and white balance as all of your regular images, except you take it with the lens cap on your lens to make everything black. Loading a dark frame is optional. I recommend taking one before and one after the main sequence of star trail photos.



Once you have loaded all of your images – and if you want, a dark frame – click *Build > Startrails*. It will then take a long time to process all of your images. Once it is done, just click *File > Save Image* and you are done!

If you want to combine your images in Photoshop and not Startrails.exe, there is a special Photoshop Action available.



You can also do this in Photoshop by going to *File > Script > Load Files into Stack* and then loading your images up and clicking OK. Wait for all the images to be placed into the new Photoshop document, and then select all the layers and change the blending mode to Lighten. You can also try experimenting with other blending modes such as Linear Dodge (Add), and Screen.

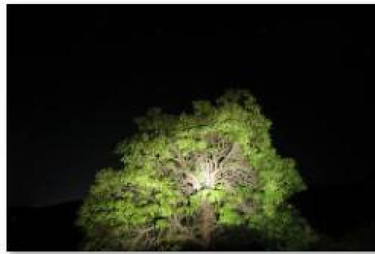
Secret Star Trail Tricks

Here are some cool tricks you can implement in your star trail shots:

Fading Star Trails

Over a long time, while the camera is taking the exposure, you can rotate your focus ring out of focus so that the stars gradually fade out [example]

Star Trails with Illuminated Foregrounds
Remember that you can also use a flashlight, car lights, or a campfire to illuminate the foreground subject.


D3S_3788


D3S_3789



This image was compiled from several layers of photos. I took about five images of the tree being lit up in different ways by my flashlight, but only used two of them (as seen above). It's always good to have extras. I took some shots with the flashlight shining on the edges of the tree, some in the middle, some all around, some bright, some dark, etc. This gives me options later in post-processing. I can blend the exposures together and mix-and-match until it looks good.

After I got enough shots of the tree being lit up, I started the star trail sequence and took a little over 420 frames, each 30 seconds long from 9:30PM to 1:30AM at F3.5 using my 18-55mm lens set at 18m with an ISO of 200. Then I brought my fogged up camera inside and compiled the sequence in Startrails, put it in Photoshop to make it brighter, did some color adjustments and added the illuminated tree to the scene....

Note: I live in a rural area, so I didn't have to worry about light pollution. Plus, I have a deck out near the back of my house so I didn't have to worry about animals like deer knocking my camera over or something.

Dotted Star Trails
If you are taking a single long exposure, put something in front of the lens (like your hand) to block the light from coming in. Do this in regular intervals. Say, 10 seconds to expose the light like normal, and then 40 seconds with the object hanging over the lens to block all the light out. Keep repeating this and you should get dotted star trails.
If you are using an intervalometer, then just take a bunch of 30 second exposures and select every 10 frames or so when you import them into startrails.exe).



The photo above is an example of dotted star trails. Every 8th frame was selected and put into Startrails.exe. Here is a quick and easy way to select your frames: When you are in Startrails.exe and have just finished clicking *File > Open Images*, view your files as tiles/thumbnails/icons and resize the window until you see 5 column of icons. Simply select the first column of icons and you are set to go! You just successfully selected 1 out of every 5 frames!

Note: You could theoretically make every frame a different color so every dot would progressively shift hue.... this would probably take a long time and you would need to write a script or something for it to work. If any extremist out there does this, let me know.

Other fun long exposures



A creative use for the ND filter would be to take a picture of a watch or clock. In this 4 minute long exposure you can see each second hand as it moves around the clock.



These eyes were constantly moving around and around while the camera took a 1.5 second exposure. No Adobe Photoshop software was used!



This was a one second exposure. The eye was left open during the first half of the exposure, and then shut during the second half. It works best to do this trick on a tripod, but you can get away with no tripod. Basically what you're seeing is the eye both open and closed at the same time.





These are long exposures of snow falling at night time. The snow was illuminated with a light (flashlights, LEDs, and houselights all work fine). 3 seconds.



Here is another great long exposure idea. Take a book, light it up, and turn the pages during the exposure. Anything with subtle movement can be expressed with long exposures. In order to make the background black, use the Burn tool in Photoshop. The book can be lit up by a Maglight or LED (as discussed earlier).

To create the natural reflection, get a black board and a piece of glass surface to place on top of it.

You can get the reflection inside of Photoshop by duplicating the layer and then flipping it vertically by selecting the top layer, then by pushing CTRL+T, then right clicking and selecting Flip Vertically. Set the blending mode of the layer to Lighten and then simply drag the layer down to create a reflection. Then you can make it more realistic by dimming down the Opacity of the layer, and then by darkening the bottom half by using the burn tool, or by creating a gradient on a layer mask. If any of that confused you, watch this video tutorial on making reflections in Photoshop.

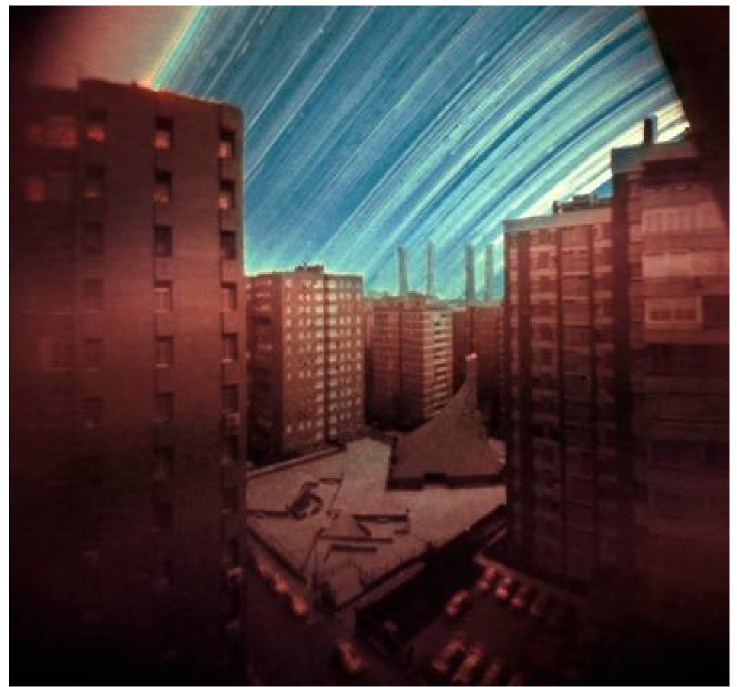
2 seconds / F10 / ISO 100

Solargraphy

Solargraphy comes from the Spanish/Polish word Solarigrafia which was developed for the Solaris project during 2000-2002 launched by the photographers Slawomir Decyk, Pawel Kula and Diego Lopez Calvin. Since then, many things have changed... Other projects appeared, but we never could have imagined that it will be so spread around the world in such a short period of time. At the moment there are many people all around the world active and related to the main idea of what Project Solaris was, making great work, and leading it on his own way. So, from the other hand it seems like this project is not over yet. Thanks to people like Tarja Tryyg from Finland and Diego Lopez Calvin from Spain, the idea is still alive. Take a look at the Tarja worldwide Solarigraphy map, it's really amazing.

The images you see on this page are Solargraphs. Solargraphy is the process of taking *very* long exposures (6-12 months) with home-made pinhole cameras to record the light of the sun. These exposures were taken by Diego Lopez Calvin. If you would like to make your own solargraph, there is a written tutorial on how to do it here.





TRICK PHOTOGRAPHY AND SPECIAL EFFECTS



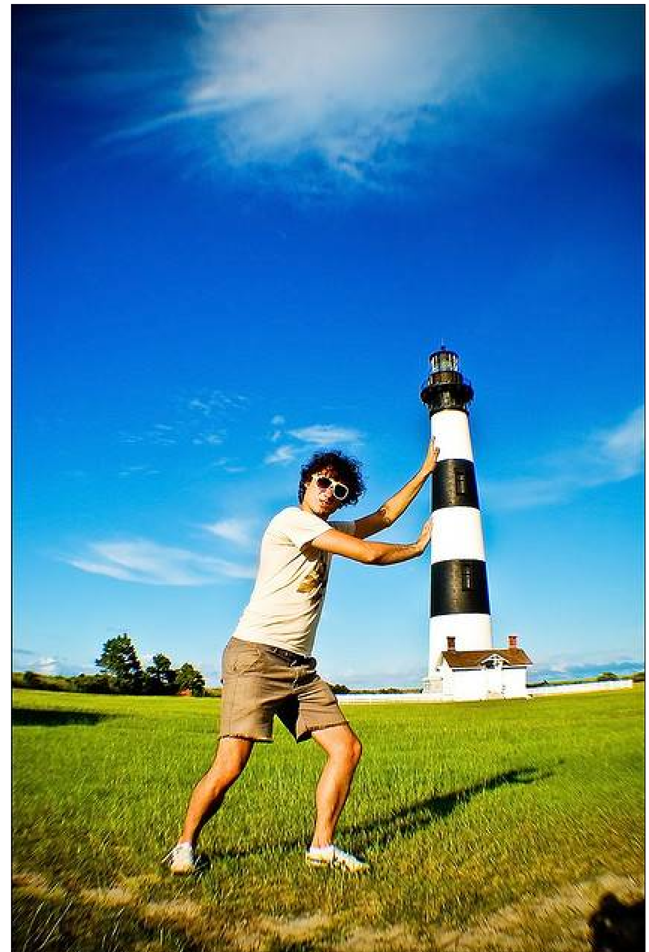
In-Camera Illusions

Forced Perspective

This trick -- as well as all the others in this section -- can be done right in-camera with no Adobe Photoshop software. For these shots, all you have to do is carefully align the camera in front of your model until they appear to be interacting with something behind them. More examples of these can be found here, here, and here. If possible try to use the smallest aperture possible in order to increase depth of field so everything is in focus.
















VISIBLY
DAY


Kevin L. Cole "kevinLcole.com"

Shadow Heart

This kind of photo is really easy to produce. All you need is a circular object like a ring or a lens filter, a big hardcover book, and a light bulb shining above and behind the circular object. In this particular photo, the lens filter was balancing between the pages. It took a while to get it to stay put. No Photoshop software was used at all, other than making the image black and white and increasing the contrast.



Unscrewed Light Bulb Trick

Take a light bulb (frosted white is best) and place a small flashlight or LED directly behind the bulb. It will appear to be turned on, even though it is not. The reason why this trick is so cool is because the light bulb isn't screwed into anything. What a bright idea!



Reflections in Animal Eyes

Turning your camera's flashbulb on and take a photo of an animal in the dark. The angle usually has to be just right for this effect to occur, but it is pretty spooky looking when you finally have got the shot!





Monitor Droste



This effect can be achieved by taking a picture of your desktop, making that picture your desktop wallpaper, and then taking another picture of your computer screen, and then make that picture your wallpaper, and so on. I put my hand in front of the monitor every time on the example to the right.

A very similar trick can be done by pointing your web cam at your computer screen. It will look like a never ending tunnel of monitors going into an infinite abyss. It also works when you plug your camcorder into the TV in live-view mode while pointing the camera at the TV screen.

Reaching into the Monitor

This trick is really fun to do and requires no Photoshop at all. First, hide all the icons on your desktop and take a wide angle photo with your hand in front of the screen, making sure that the edges of the monitor and beyond are visible. Make that image your desktop wallpaper background. Then, place the icons back onto the desktop and open a small window and place it where your hand is on the screen. Lastly, take another photo of your monitor, but this time just zoom in so that the frame of the monitor is not seen. Here is another example photo using this same technique: [link]



Transparent Screen

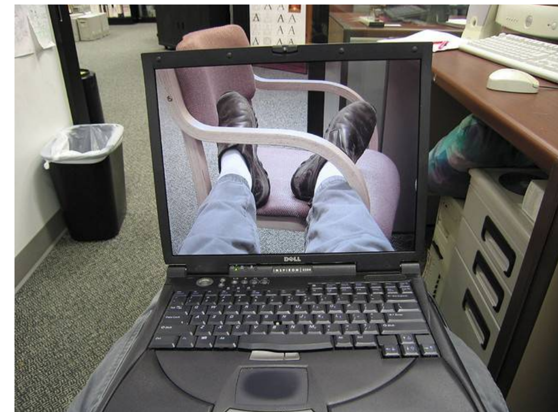


This trick can be done with and without Photoshop. Take a look at some transparent screen groups on Flickr and this post for more examples.

Without Photoshop

Aim your camera at whatever is behind your closed laptop screen, then take another photo with your laptop screen open with the previous image set as your desktop background. The most important part is zooming in at just the right spot. This can be done with a desktop monitor as well, but you might have to move it.

With Photoshop



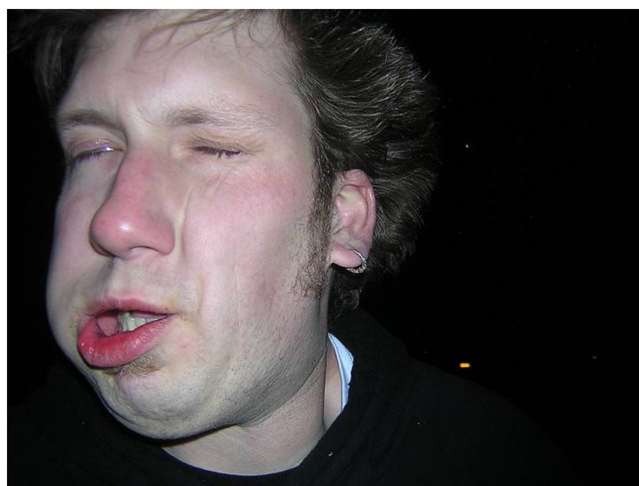
Put your camera on a tripod and place it in front of your laptop. Take one picture of your laptop screen open and another picture of your laptop screen closed. Next, bring both of the photos into Adobe Photoshop and stack them on top of one another as layers. Have the photo of the screen open be the top layer. Then simply erase the inside of the screen and you will be able to see through it perfectly, with no mismatch at all.



Jowlers

"Jowling" is a funny technique where you shake your head back and forth really fast while keeping your face muscles loose. Take the photo with your camera flash on to freeze the motion.





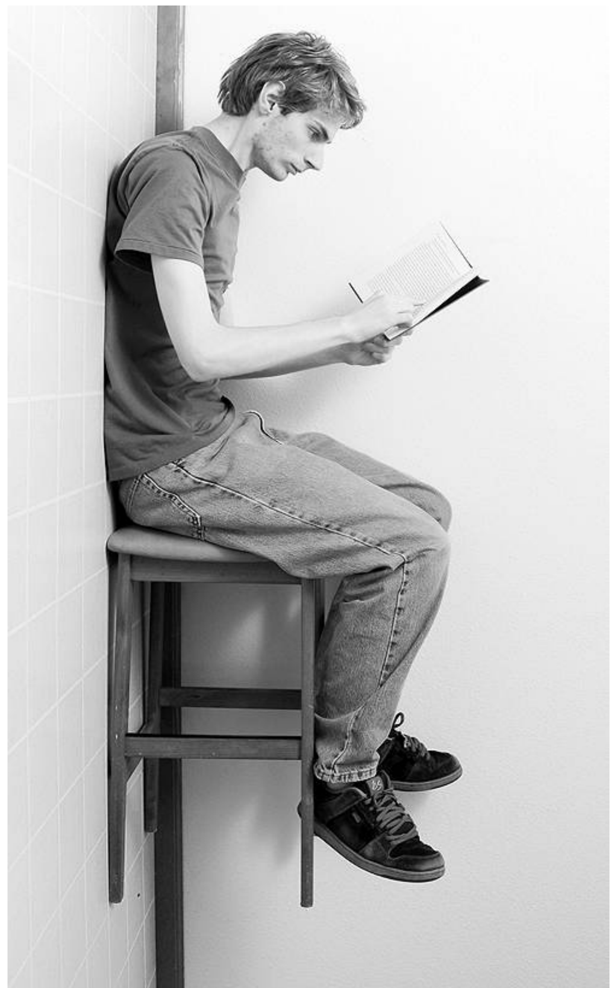
Rotated Perspective



I discovered this trick after reading *Photo Fun* by Webster Watts. The photo on the right can be achieved by taking the photograph horizontally and by having a plain background. All you have to do is flip it 90 degrees on your computer and then it will look like you are climbing up a mountain.

It also would be ideal if the ground was flat with no grass, but this was the best area around my house. Doing it on top of a wall is even better because you can get down at a low angle which will eliminate trees and other distracting things in the background.

Another example of rotated perspective can be found here,



If you have a big empty room you can put your camera somewhat low to the ground and rest on the ground and rotate the picture 90 degrees. It will look like you are falling or attached to the wall.



Shaped Bokeh

Even though the classic bokeh look of big bold blotchy circles in the background of an image made with lenses with shallow depth of field is still very appealing and pleasing to the eye, *shaped* bokeh takes it to a whole new level! If you really want to emphasize a certain theme in your photograph, this is an excellent way to do it. Not too many people take the time to do this stuff, so your photos will really stand out against the crowd.





Cut out a small shape onto construction paper (black is technically the best because it reflects the least amount of light, but anything works) and tape it over a lens that has shallow depth of field. The hole should be about the size of one of your fingernails, if not smaller. The standard bokeh lens that most people have is the 50mm f1.8. It's an inexpensive yet very high quality lens.



A good way to emphasize a theme would be to place objects on a table and drape some Christmas lights 3 to 20 feet behind the main subject you are photographing. Make sure to set your aperture to the lowest number (like 1.8) and to focus accurately on the subject.







Using bokeh cutouts in regular daytime environments also gives a unique but subtle effect. In the example above you can see a faint star shape on the edges of the photograph, especially near the upper left corner. I bet you only *consciously* noticed that after I told you, didn't you? See! Using these bokeh cutouts will allow you to put subliminal messages into your photos!

Here is a video tutorial describing how to accurately make your own bokeh kit out of construction paper.

If you are too lazy to cut out your own shapes on construction paper, you can also buy the bokeh masters kit, a set of pre-cut designs that go on the front of your lens.

Double Exposures

Double exposures are just that: double exposures. They are two images put together. They can be done in-camera with film SLRs and even digital SLRs if your DSLR supports it. On my Nikon D300s, there is an item in the Shooting Menu labeled ”Multiple Exposure”. It allows the photographer to take 2-10 different shots and combine them once the sequence of shots has been completed.

If your DSLR doesn't have a multiple exposure feature, stack the images inside of Adobe Photoshop using two separate layers, set the top layer Opacity to 50% and you're done!

In order to make people transparent, simply put your camera on a tripod and take two shots; one with you or an object in the frame and one without.









The Orton Effect

This effect gives your composition a beautiful aurora of glowing light. Simply take two photos, one in focus and one out of focus, then combine them through the use of a double exposure. The series of images below shows the range of just how much the second photograph can be out of focus. I personally like the defocus amount on the third photograph the best because it seems to be the most aesthetically pleasing. This effect also works well with landscapes, especially if some of the environment is in sun and some is in shade.



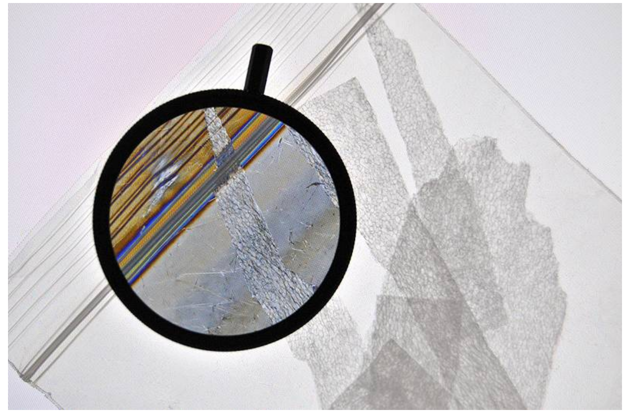






Birefringence

My friend Gordon from Forest Grove Camera Club showed me this trick. All you need for this effect is a some transparent material (plastic, glass, or water), a polarizer filter, and a white back light. Simply place the transparent material on the back light (I just use a laptop screen), then screw your polarizer filter on your lens and start turning the filter to redirect the light in different directions.



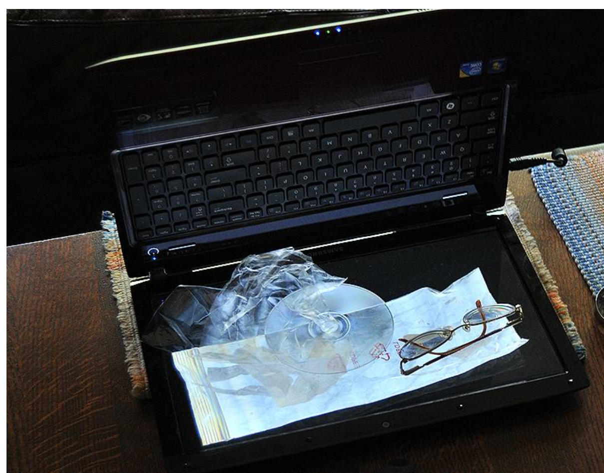
As you can see, if you turn the polarizer filter into the right position, the white back light will turn completely black. This almost makes it look like a negative film strip!

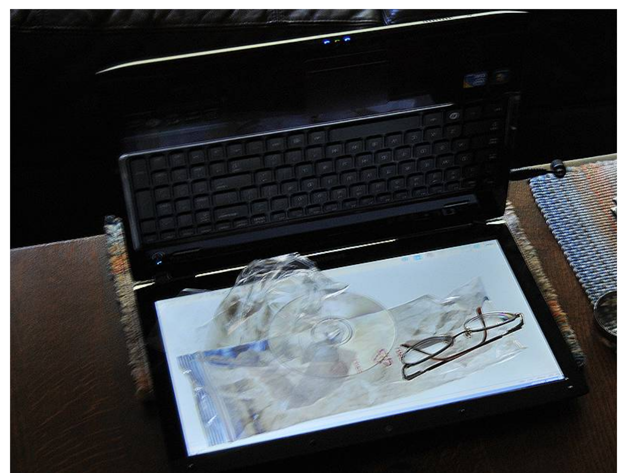


Having multiple layers of thin plastic material like plastic bags creates a very abstract effect.







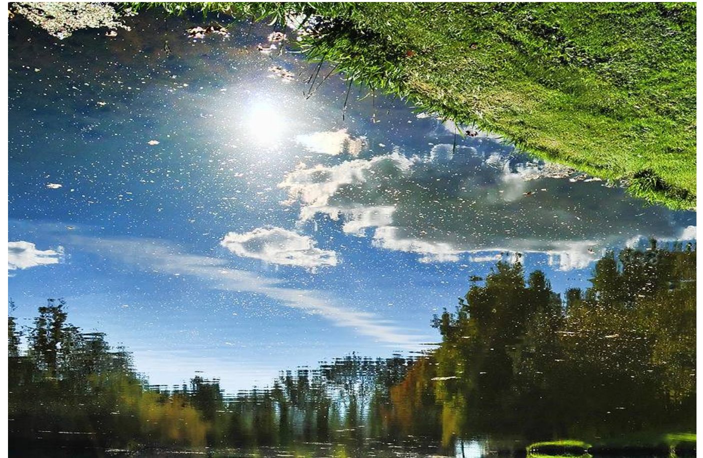


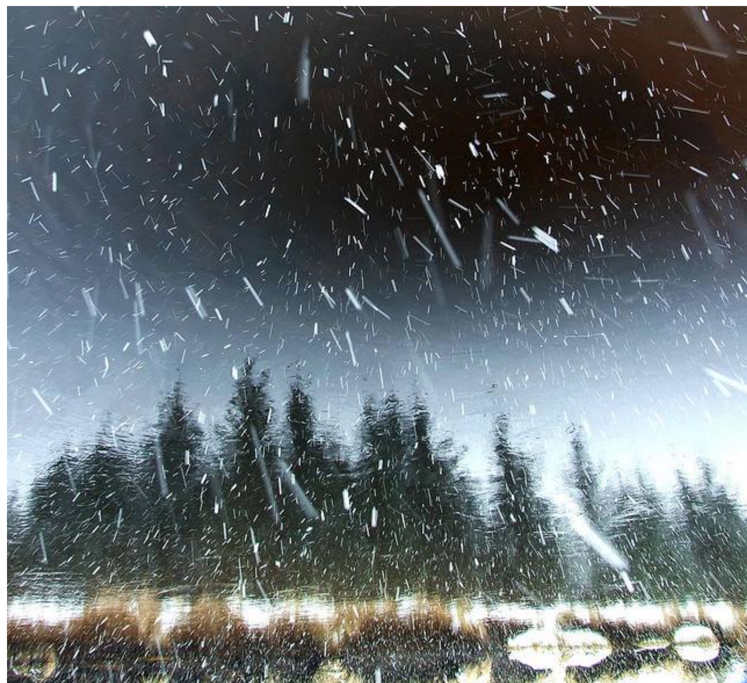
Upside-Down Reflections

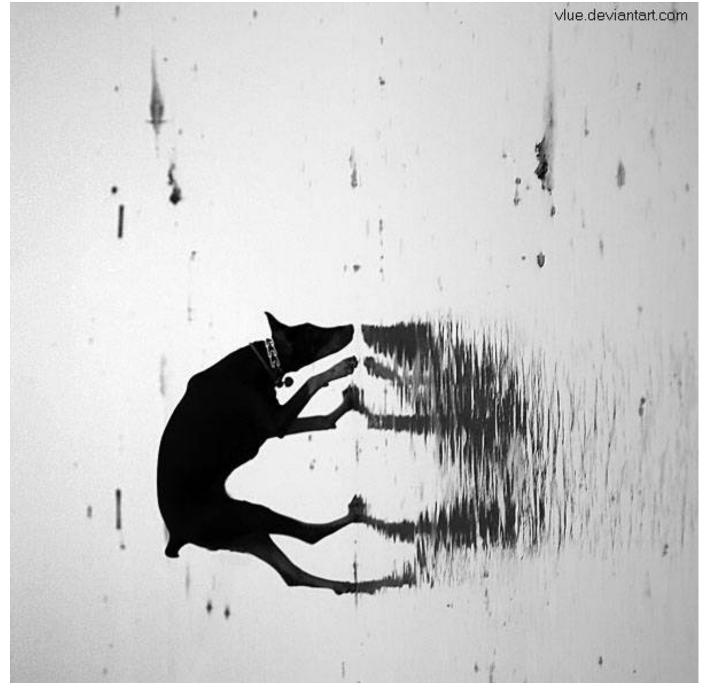


This is a classic trick that always comes out interesting. If you ever see a pond, lake, or puddle, turn your camera upside down and zoom in to get a close crop of the reflection. You will usually want the focus point to be on the *reflection* and not the actual water surface, but try experimenting with both. This produces a surreal effect. Try experimenting by throwing a rock in the water to create ripples, or place different things on the water surface such as leafs and oil. If the water is on the street or on the sand and it isn't raining, the reflection well come out pretty solid, but if it is in a large pond or a river, the reflection usually comes out more distorted, depending on how still the water surface is.









HDR Photography





HDR Photography, or “High Dynamic Range” photography is a technique that allows you to make the highlights and shadows more visible in a photograph. Digital SLR cameras can only contain so much information until the brightness and darkness levels exceed what it can record, so in order to get a wider visible range of shadows and highlights, we need to “bracket” (take multiple photos on a tripod that vary in brightness) and then combine them on the computer. Below is an example of why HDR is an absolute necessity when you want to “capture what you see”.



-2 EV 0 EV +2 EV

The image on the left has been under-exposed to capture the bright highlights, particularly to save the highlight detail in the clouds to the left side. The image in the middle is a normal, properly exposed image. It contains the mid-tones of the foreground, but the clouds on the left side are blown out. The third image will capture the detail of the shadows.



Now, *this* image is all of them put together using special software to create a high dynamic range photograph. The highlights, midtones, and shadows can all be seen at once. As you can see, HDR is particularly useful when there is an area of a photograph that is completely dark (or in shade) and another area that is really bright (sunshine and sky). More images could have been taken (-4, -3, -2, 0, +1, +2, +3, and +4) to capture even a wider range, but most of the time having a standard set -2, 0, and +2 will do just fine.

Taking the HDR Photograph



Step 1: Put your camera on a tripod. HDR images are ideal when they have been taken on a tripod. If you can hold your camera really steady, then you *could* theoretically take the bracketed set of images without a tripod, but I always advise against this because the results are less than perfect.

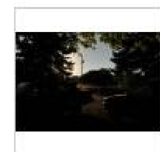
Step 2: Put your camera in Aperture Priority mode. Because we are taking 2 or more photographs and then combining them, the images must remain consistent in terms of focus and aperture. Also, put your ISO down to as low as it can go (ISO 200 or lower) and put your white balance to something other than Auto.





Step 3: Manual Focus. Focus as you would normally then turn off automatic focusing in order to ensure that the lens doesn't try to focus on something else when you're taking the other exposures. I've found that this usually works fine with auto-focus left on, but if you are a perfectionist, switching over to manual is ideal.

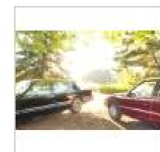
Step 3: Take the bracketed set of photos. In order to take a set of bracketed photos, please refer to your cameras manual, or Google the term “auto bracketing” and then “your camera model” (example: *auto bracketing D50*) and you will find your answer. Not all cameras are capable of bracketing photos. If this is the case for you, you will need to manually take a bracketed set of images by adjusting the shutter speed. Every camera is different, so I can't advise on this part. Some cameras have buttons that allow you to bracket your images, and some cameras only allow it through the menu.



D35_0366



D35_0369



D35_0372

You can take as much or as little images as you want. A standard quick HDR photo consists of one photograph that is 2 stops underexposed, one photograph that is perfectly exposed, and one photograph that is overexposed by 2 stops. This makes a bracketed set of (-2, 0, +2). You can even take more if you wish, like a (-4, -3, -2, -1, 0, +1, +2, +3, +4) or a (-4, -2, 0, +2, +4), but not all cameras can automatically take that many, so you may need to do it manually by adjusting the shutter speed for each individual exposure you take.

Note: Pushing down on the shutter button causes minor camera-shake. In order to get around this camera-shake issue and get images that are truly tack sharp, use a cable release, or better yet, a wireless remote with mirror lock-up on (if your camera has that feature).

You can, alternatively, just take a single RAW photo without taking a bracketed set of images. I would only do this when there are moving subjects (people, animals, cars, etc.) in your composition because moving subjects can't be recorded properly across three separate frames. If you *do* end up taking a bracketed set of images and there are moving subjects in it, there are ghosting removal tools available in both CS5 and Photomatix.

Step 4: Post-Process. Now that we have taken the photos and have 1-9 shots in our camera, all we need to do now is post process them. There are several software programs that can tone-map your images, but the big two are Photomatix and Adobe Photoshop (particularity Adobe Photoshop CS5 because of the recent upgrade in tone-mapping capabilities). If you would like to see a comparison of Photomatix and CS5, look at this and this. I'll go over both:

Post-Processing in Photomatix (video tutorial)

First, go buy Photomatix with the coupon code "**photoex**", because you'll get a 15% discount. After you have the program, open Photomatix, click the Generate HDR button, and then select your photos. You'll then see a dialog box with some options like "Align source images", "Reduce noise", etc. I would recommend ticking all of them on and then click OK. Photomatix will combine the images together and then show you a preview of an unprocessed HDR photograph. This preview will look ugly because it has not been tone-mapped yet. In order to tone-map the photo, click *Process* > *Tone Mapping*. This is where the magic happens.







You'll see adjustment settings to the left, and a preview of your image to the right. Each image is different and requires different settings. Just adjust each slider until you get something you like. There are no rules when it comes to HDR; you can adjust your image to the extreme or go for a more modest look. I usually like to bump up the white point a little if there are bright skies present, because otherwise the whites will just come out to be a washed out gray.

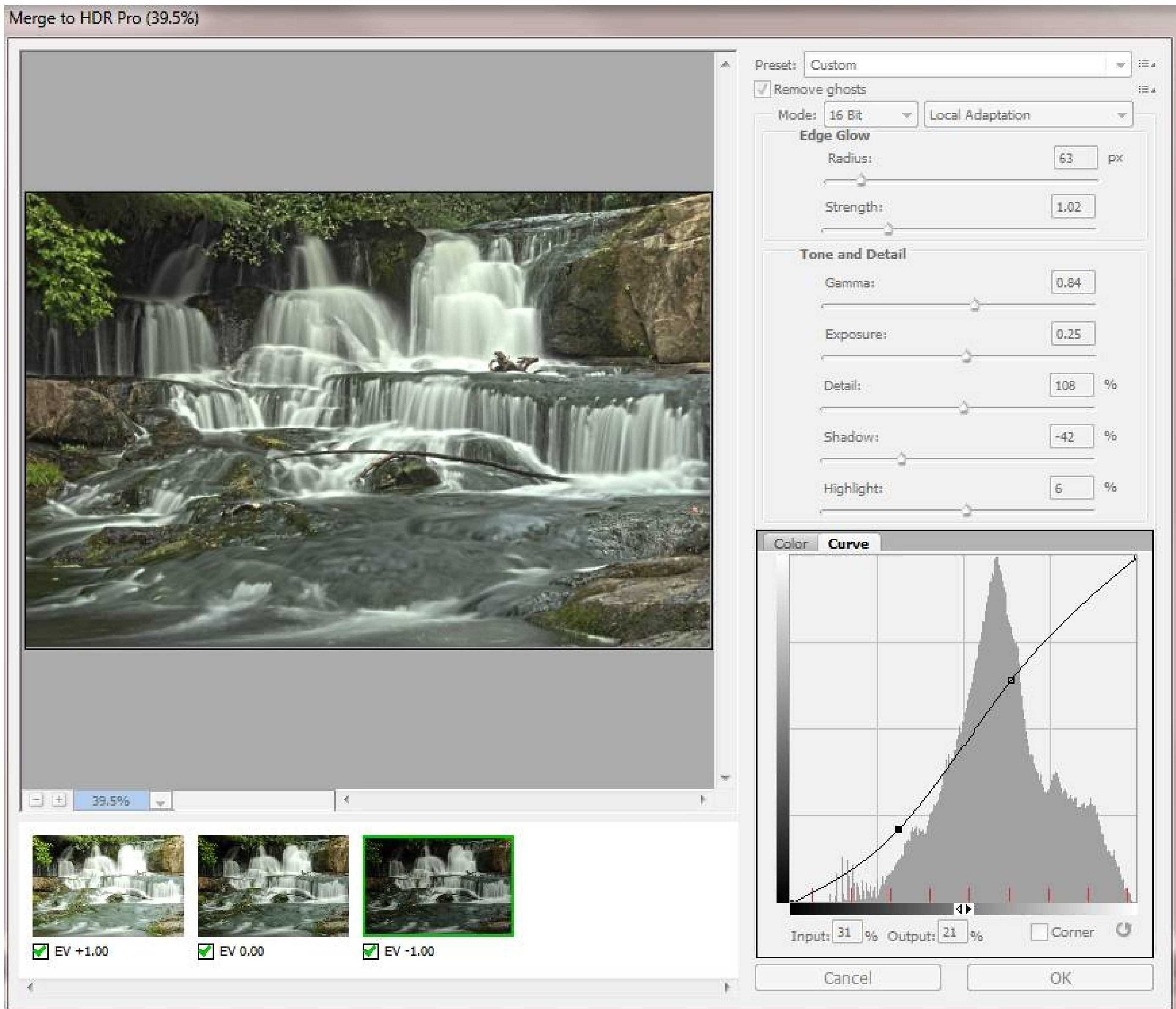
Images being adjusted with extreme values have caused probably the most controversial arguments in the photography world. The images on the left are good examples of this. Each image probably has the Strength on 100%, The white point and black point set to 100%, the saturation set to 100%, etc. Some people love this look and some people hate it, saying it isn't even "real photography". You can really tell if an image is an extreme HDR photo when you look at the thumbnail of the image. Sometimes you can't even tell what you are looking at because the values are set at such extreme numbers.

One of the values that really over-does it is the Light Smoothing option in Photomatix. The Light Smoothing option basically determines how 'spread out' the tone map is. If you set the Light Smoothing to Low (with the Strength on 100%), the images will look unnatural; if you set the light smoothing to Very High, it will look natural (like a regular, non-HDR photo) and not much of the HDR effect will as noticeable. I like to leave it at High or Medium, but the choice is yours.

Post-Processing using "Merge to HDR Pro" in Photoshop CS5 (video)

Although HDR can be done on Photoshop CS4 and below, major improvements have been made in CS5 that offer the user more control over their final output of an HDR image. In order to merge multiple frames into a HDR image, click *File > Automate > Merge to HDR Pro*. Select your images, leave "Attempt to auto-align layers" ON (even if you took the shots with the tripod!) and click OK.

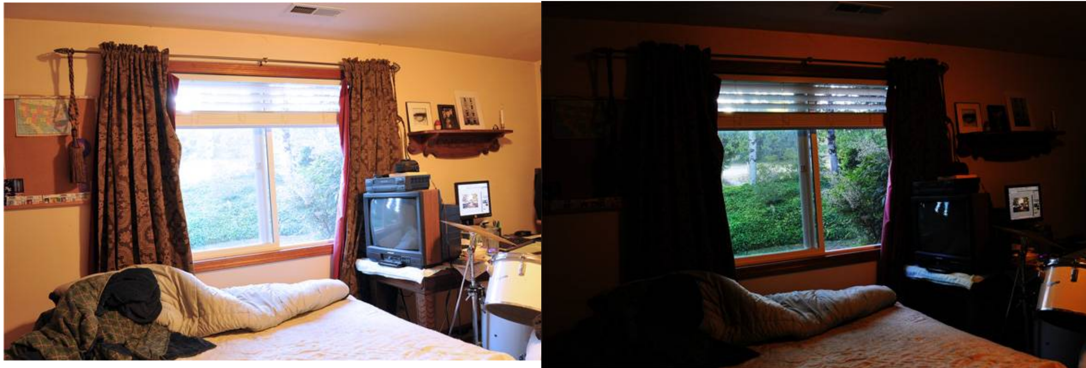
You will then be presented with an adjustment area similar to Photomatix's. Fiddle around with the sliders until you get something you like. There are also presets at the top in a drop-down box, but I would advise against using those. Again, there is no right or wrong way to do this. I usually start raise the Detail slider a little bit and then go back up to Strength and Radius.



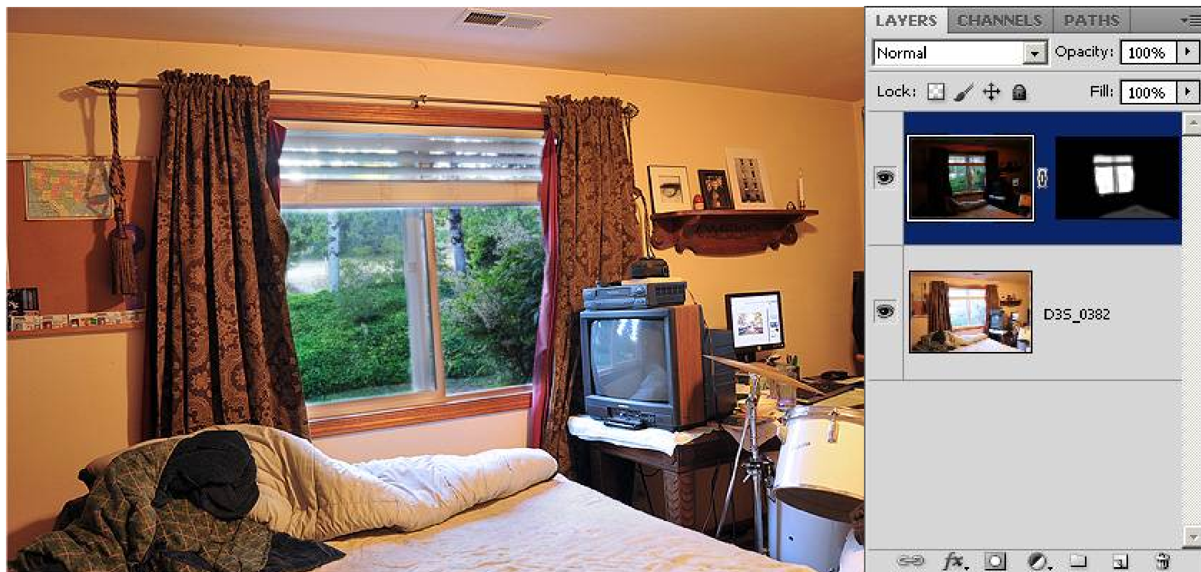
After you are satisfied with your adjustments, click OK. You will now be able to edit the image in Photoshop in 16bit mode.

Manually Tone-Mapping Images

Another technique that you can use to increase the dynamic range of a photograph is to manually tone map areas of your photo by layering them on top of one another and then applying custom layer masks in Photoshop. Let us discuss how to do this:



Here we have two images taken inside my bedroom. The image on the left is a proper exposure for the inside of my room, however everything outside the window is too bright. The image on the right has everything outside of the window exposed properly, but this, in turn, underexposes everything *inside* room. This is why we need to make our own custom tone-mapped image. Go to *Scripts > Load Images Into Stack*. Load your images up and wait for them to compile. After the process is completed you should see the bracketed set of photos in the Layers window. Create a layer mask on each layer except the bottom one, then selectively paint over the mask with the paint brush tool (white reveals the selected layer, and black conceals).



As you can see above, the viewer can now see everything *outside the window*, and everything *inside the room*. I've made a layer mask on the underexposed image to reveal the window and conceal everything else. I've also lowered the Opacity (transparency) on the paint brush just a little bit and filled in the area on my bed because it was a little bright. I could have taken both of the shots with custom white balances (one for outside the window and one for inside) to get the color perfect in each area, but this was just a quick example to show you the potential of using this technique.



Here is another example of a situation where manually tone-mapping your images comes in handy. When I tried to make a tone-mapped HDR out of these three images (as seen in the Layers window) with *Photomatix* and *Merge to HDR Pro in Photoshop*, I wasn't happy with either of the results (as seen below). So, I used the under-exposed image for the sky, the over-exposed image for the tree in the foreground, and the mid-exposure for the rest of the foreground. Doing this allowed me to get the result I personally desired.

You could also tone-map your image in Merge To HDR Pro or Photomatix and then bring that image on top of your custom tone-mapped images in Photoshop. It can get pretty messy.

Note for the top image: Notice how the tip of the tree on the left is dark. This is because I didn't accurately mask it out. Remember to check for certain areas that are not fully masked, and fix them.



Merge to HDR Pro in CS5



Photomatix 3.2

More HDR techniques can be found here.












| BASA SHAMIH |
P.H.O.T.O.G.R.A.P.H.Y





Infrared Photography

These are infrared photographs: pictures recorded with light beyond the visible spectrum. You can take infrared photos by using an infrared filter that screws on the front of the lens, or you can convert your camera to take IR photos permanently.





Why Take Infrared (IR) Photos?

- Infrared photography darkens clear blue skies but leaves the individual clouds bright. This creates a dramatic boost in contrast and leaves the photo with an interesting dynamic range.
- Infrared photography can leave foliage (grass, plants, leaves) looking pure white like snow.
- Using an IR filter on your lens gives you the potential to take photos with long shutter speeds.
- If you take photos of people in IR, their hair will look blue, *plus* their acne and freckles will appear to be dramatically reduced, making their skin silky smooth!

Can my camera take IR photos?

All cameras are able to take infrared pictures, but all cameras have an IR light Blocking filter in front of the camera's sensor. Some IR Blocking filters are extremely strong and block out *all* IR light, while others aren't very strong, and let some IR light pass through.



Nikon D50. ISO 200, 1/2 second, f4.8.

The IR light coming from this VCR remote can easily be seen, so this camera is ready for IR.

If you have a camera with a *weak* IR Blocking filter, you can buy an external IR filter that screws on the front of your camera lens. This will block all visible light and only let the IR light pass through. If your camera has an extremely *strong* IR Blocking filter inside, I would recommend removing the internal IR Blocking filter completely and replacing it with a filter that blocks visible light and only lets IR light though. There is a professional service that will safely do this for you called LifePixel.

Now, you might be asking "But Evan, how do I know how strong the IR Blocking filter is inside my camera?" Well, in order to figure out how strong it is, find a remote control that goes to your TV or something similar, then take a 1 second exposure. During that exposure, click the power button on your remote, pointing it towards the camera lens. When you look at the picture on the LCD preview screen, you should hopefully see a light coming from the front of the remote. That is near infrared light! Sweet.

If the TV remote light looks bright, your camera is well suited for infrared photography as-is. If the TV remote light looks very dim, that means the IR Blocking filter is pretty strong, which means you can still do IR photography but the exposure time will have to be longer when using an external IR filter. To give some comparison, a D50 camera has a weak IR Blocking filter and the exposure time is about 1 second in daylight when using an external IR filter. A D300 has an IR Blocking filter that is stronger, so the exposure time will be about 20-30 seconds in daylight.

Try doing this test with different lenses; some are better for IR photography than others. In fact, some lenses don't work that great with IR filters and create hotspots. I myself haven't seen much of a problem with "hotspots" in any of my photos before. I'm using the Nikon 18-55mm lens that came with my D50.

If you still don't see *any* light coming from the remote, or it is *extremely* dim, you won't be able to take infrared photos with your camera using an external screw on IR filter. You can, however, get the IR blocking filter removed from the front of your camera's sensor by LifePixel.

Conversion costs ~$250, but this method has benefits:

- the shutter speed times will be normal
- the focusing will be normal
- you can see through the viewfinder when taking a photograph

The only potential downside to this method is that you won't be able to use the camera for regular visible light color photography anymore – only IR.

BUT, if your camera passed the TV Remote Test, then you can go the cheap route and start taking infrared pictures with the Hoya R-72 Infrared Filter.

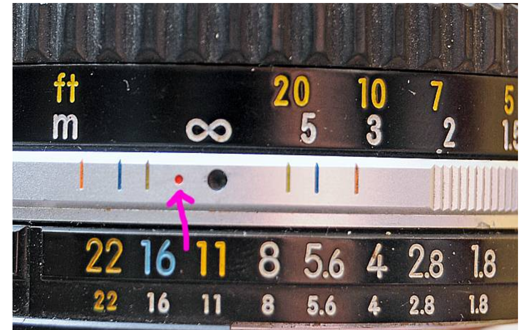
Here is a list of cameras and lenses that work well for IR:
Good/Bad Infrared Lenses List
Good/Bad Infrared Camera List



Taking Infrared Photos Using the Hoya R72 Filter

When you get your filter, you will notice it looks black, but when you put it up to the sun or a bright light, you will notice it is actually a very deep red. Because the filter is so dark, you will need to focus your scene *before* putting the filter on. Once you have your scene in focus, screw your filter on, and then switch to manual focus.

Lenses focus differently when using an infrared filter. Some lenses will have an infrared focus marking on the lens itself that shows you where you should refocus the lens.



There is an example on the right that shows a pink arrow pointing to a red dot. This red dot is the IR focus marking. Use the mark if your lens has it. If it doesn't, you'll have to play a little guess-and-check game to find the sharpest infrared focusing spot.

Usually I rotate the focus ring about 1 millimeter away from the infinite symbol, take a photo, and then preview it. If my photo comes out blurry, I'll keep readjusting (guessing-and-checking) until the preview looks sharp.

Now, you *can* theoretically use the camera's auto-focus, it will just be slightly out of focus. I've taken many photos like this regardless. Try a few test shots using the auto-focus, you may find it acceptable. Using higher F numbers to increase the depth of field will help too.

Now, like I said before, the Hoya R72 filter is **dark**. This will, in turn, substantially increase shutter-speeds, which is why you *need* a tripod to take something that looks professional.



You *can* take infrared pictures without using a tripod, but it is not recommended. You will need to use high ISO numbers and low F numbers, and those usually are not good for landscapes. Just avoid all of that mess by using a tripod. Your photographs will look a lot more professional, and a heck of a lot less blurry.

White Balance and Color Correction for Infrared Photography



After taking some photographs with your filter, you may realize that your pictures are completely red (or pink, or purple). In order to fix this, just set the White Balance with your filter on, pointing the camera at green grass. Google search "How to set white balance with [YOUR CAMERA MODEL]" for instructions if you don't know how to do this yet. If it works, your colors should look like the ones in the photo to the right. Brown skies and somewhat blue foliage.

However, some cameras cannot set extreme infrared white balances as-is in-camera and your photos will come out with weird red and purple colors no matter what. If you find that this is the case for you, you will have to take your photos in RAW format and set the white balance on the computer (this is what the majority of people do). Here's how to do it:

Step 1. Open your RAW file in Adobe Camera RAW and then in the bottom left corner of the window you will see a button that says “Save Image...”. Click that and save a .DNG copy of the RAW file then close down Photoshop.

Step 2. Download the Adobe DNG Profile Editor and open the .DNG file you just saved with it. Once the file is open, click the “Color Matrices” tab and slide the Temperature value to -100.

Step 3. Save this digital camera profile by clicking File > Export [Camera] Profile. It should automatically bring up the correct directory where you need to save the profile. If it doesn't save it using one of the following:

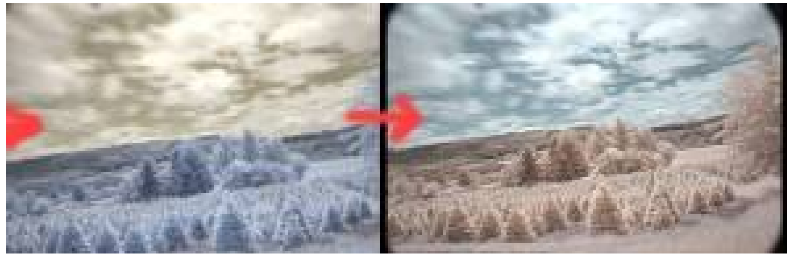
Mac OS X	/Library/Application Support/Adobe/CameraRaw/CameraProfiles or <*home*>/Library/Application Support/Adobe/CameraRaw/CameraProfiles
Windows 2000 / XP	C:\Documents and Settings\All Users\Application Data\Adobe\CameraRaw\CameraProfiles
Windows Vista	C:\ProgramData\Adobe\CameraRaw\CameraProfiles
Windows 7	C:\Users\YOURUSERNAME\AppData\Roaming\Adobe\CameraRaw\CameraProfiles

Step 4. Open the RAW file again in Adobe Camera RAW and then click on the “Camera Calibration” tab on the right. Under “Profile”, select the camera profile that you just saved and then go back to the “Basic” tab.

Step 5: Grab the eyedropper White Balance tool located at the top of the window and click on an area of grass. Your photograph should now look neutralized, and your skies should be brown with the foliage blue!

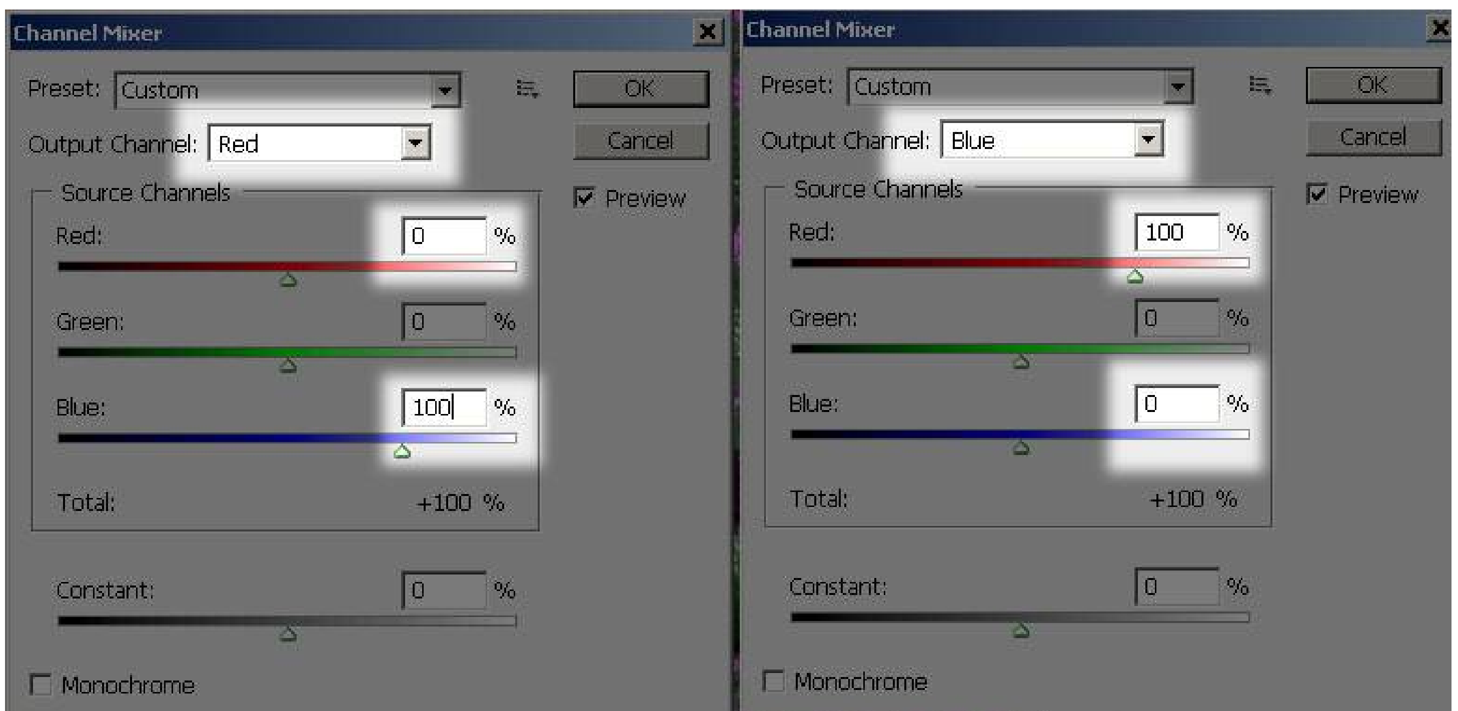
Channel-Swapping in Photoshop

The next additional step is to change the colors around using a “channel swap” or by using the hue/saturation slider. A popular look for infrared photography is to have a blue sky instead of brown:



The image on the left is before the red/blue channel swap, image on the right is after it.

It's quite easy to obtain this look. In Photoshop, go to *Image > Adjustments > Channel Mixer...*. Make sure the "Output channel" is selected on Red inside of the drop-down box. Type in 0 for red, and 100 for blue. Next, select the Blue output channel but selecting it in the drop down box. Type in 100 for Red, and 0 for Blue. You've just swapped all the red colors for all the blue ones. Feel free to experiment with other variations; I've seen pink and yellow foliage before.



IR Examples Chart

	Normal color picture. NIKON D50 F8 1/500th sec.
	IR photo with AUTO WB
	IR photo with adjusted white balence, straight from camera
	IR with white RED/BLUE Channels swapped
	Red channel from IR photo replaced with the Red Channel in color photo

To fully understand how this last image was created, watch this video!



Remember that channel-swapping isn't limited to red and green. There are so many different variations of color swapping left out in the open ready to explore. The image above has four simple variations, all done using the Channel Swapper and Hue/Saturation adjustments inside of Photoshop.

If you want your foliage to look white like snow, you can easily desaturate the areas by using *Image > Adjustments > Hue/Saturation*. Select Red (or whatever the color of your foliage is) and then slide the saturation slider all the way down to -100. You can also use the Sponge tool in Adobe Photoshop's tool palette to selectively desaturate certain areas.

If you have your camera on a tripod (which you should anyhow), I would take a normal color image first, and then take an IR photo right after, without moving the camera at all. You'll now have the regular color version and the Infrared version of the exact same scene. You can combine these two photos together using different blending modes in Photoshop and by also swapping different channels in each layer. There are so many variations available, my head would explode if I had to list all of them, so it all comes down to experimentation!

More resources on Infrared Photography:
http://www.wrotniak.net/photo/infrared/

Using Two Infrared Filters May Get Better Results
I have access to two Hoya R72 filters. I stacked them on top of each other and used both of them on my lens simultaneously. The results seem to have more color and depth. People seem to debate about this. What do you think? The images on the left were taken with two IR filters stacked on top of each other, and the images on the right were taken with one. These pictures have been channel swapped.



More IR photographs for inspiration:













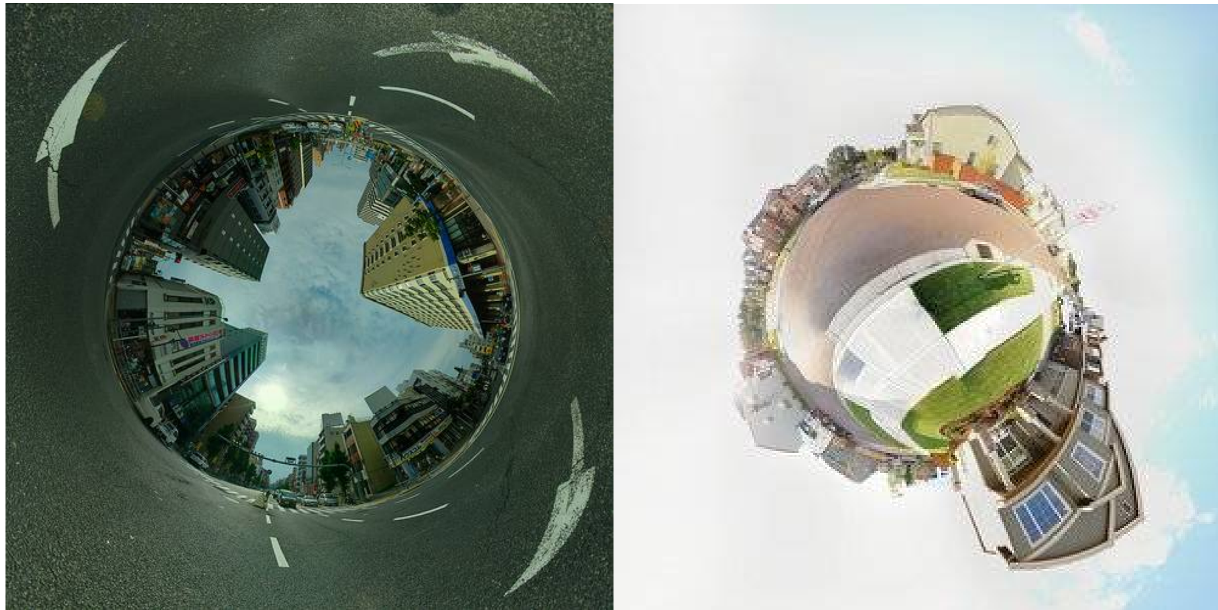






360X180 Planet Panoramas

These are complete immersive panoramic images (A complete spherical field of view... It's like a 0mm lens!) You can use a software program called Hugin to stitch the images, and Flexify to manipulate them even further. If you want to learn more about what a 360x180 panorama exactly *is*, head here and read the column on the left. This chapter is pretty long, so if you only want the big-picture-basic-gist of things, watch my very brief video. If you are serious and want to actually execute taking fantastic 360x180 panoramas, then watch the video and read the chapter. This article goes into much more detail than the video.



This technique requires some patience at first– because honestly, it takes some time to just learn how to do it -- but it is definitely worth it. People will be asking you "How did you do that?" every time you show them a 360 stereographic stitch. You can then respond saying “I took 65 images with my camera and a wide angle lens on a tripod with a special panoramic-head to capture a complete immersive view of the entire environment around me. After that, I stitched the photos in Hugin to make an equirectangular projection, then put that equirectangular image into Flexify and remapped it into a stereographic projection.”
They'll look at you like you're nuts. And you are. You're a Photo EXTREMIST!

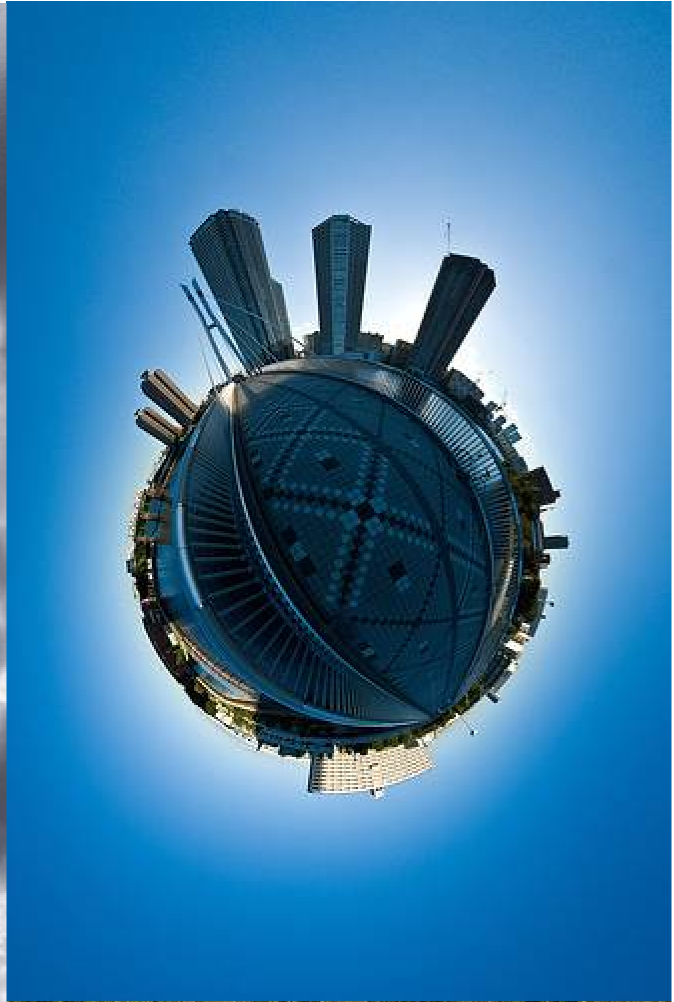


equirectangular



stereographic

You will need a digital SLR (or even a point and shoot camera), and a free program called [Hugin](). It is also recommended that you have a tripod with a 360x180 panoramic tripod head, and the Flexify Plug-in for Photoshop, but it isn't required. I will talk about all of these things in this chapter, but first let's look at some awesome examples:





Taking Hand-Held 360 Degree Panoramas

First, set your camera to take *SMALL JPEGs*. You *can* take larger JPEGs, but I wouldn't recommend it until you are successful with your first completed panorama. The reason why is that the resolution (image size) builds up fast when you are stitching dozens of images together, and can take a long time for your CPU to process it all.

Take your digital SLR and use the widest angle lens you have. Mine is an 18-55mm kit lens, set on 18mm. Next, point the camera to the ground and start taking pictures around you. Try to keep your camera lens as the center point, and rotate/spin your body around it, shooting in vertical orientation. If you are having a hard time visualizing what I am describing, go to the 1:17 mark on this video.

Traditionally speaking, it is best to use manual mode on your camera with manual focus (and this is the method I recommend using), but I've discovered that using Aperture Priority mode with automatic focus works too because Hugin has the ability to blend each picture together, even if the exposure level and focus point do not match up perfectly. If you are using full Aperture Priority Mode, I would suggest putting your camera to be set on matrix metering (most cameras using matrix metering by default.)

Once you have taken the bottom row of photos, tilt your camera up and take the next row of pictures, making sure that the field of view will overlap by about 25% or more. On my camera/lens, I have to take 4 or 5 rows of pictures, with about 12 pictures in each row. This comes out to be about 65 total pictures (But that is on my specific lens and camera, it might be different for yours). If you're using a super wide angle fish eye lens, you can get the job done by only taking *five* pictures. The resolution won't be as large, but hey, it takes a heck of a lot less time to shoot, plus it is easier on your computer.





Zenith and Nadirs

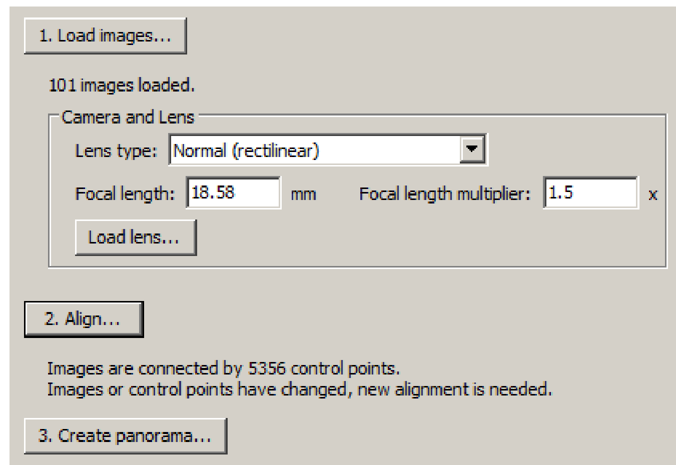
Once you're done taking the pictures you need to take another picture while pointing the camera straight up at a 90 degree angle. This is called the Zenith. Take another picture straight down at 90 degrees (try to move your feet out of the way, if possible) this is called the Nadir. I usually mess up on the zeniths and nadirs, which is usually okay, but the image won't come out looking perfect: there will be a black spot where the zeniths and nadirs are supposed to be. You will see what I mean if you didn't take these correctly, it happens to me frequently.

Now we are ready to stitch them all together on the computer!

Download a program called Hugin, install it, then boot that mother up.

Using Hugin to Stitch 360x180 Panoramas

Hugin is a free open source panorama software. PTGui is another one very similar to Hugin - it's not free, but it has some additional features: It's much faster at stitching the images, has an HDR Tone Mapping feature built right into it, etc.

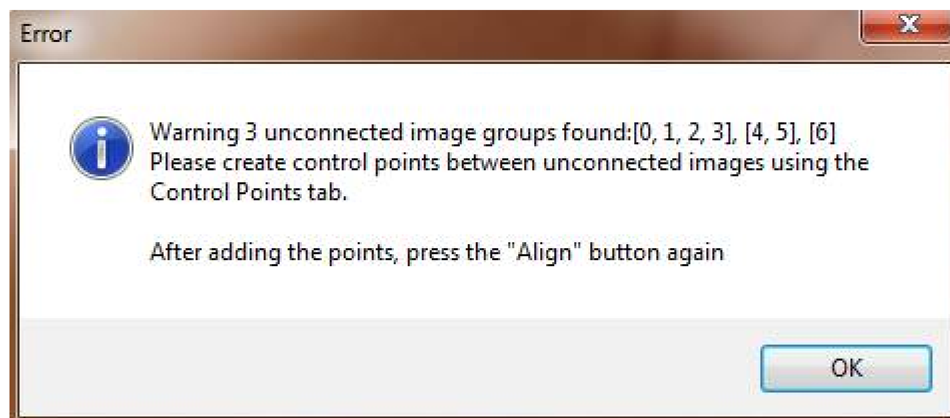


For this demonstration, we will be using Hugin. The process is extremely similar in PTGui.

The very first thing you want to do when you open Hugin is to click *File > Preferences> Control Point Detectors* and change the default to *Autopano-SIFT-C*.

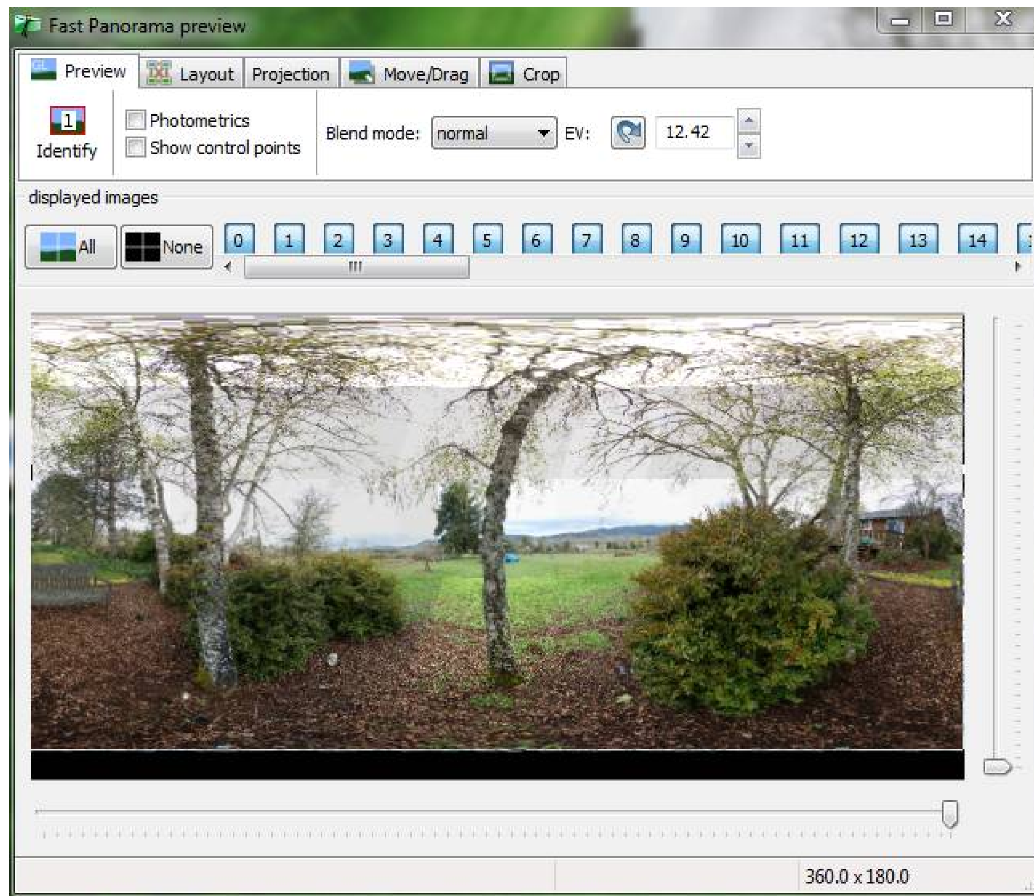
Next, load all of your images into the program and then click the Align button. Depending on your computer speed, it will take a while to process all of the images, this is why I recommend taking small JPEGs first. Try to close all applications you aren't using - this will free up some memory which Hugin needs. If you have too many programs running, Hugin can potentially run out of memory and not do its job.

Once the images are done being processed, one of two things will happen: Either **1)** a dialog box will appear saying that it couldn't stitch some images together, and you need to manually fix them (as shown in the screen shot below), or **2)** a preview window will pop up, showing your panorama. If the former happens, you will need to add control points on matching features of each image pair, or just delete the images. Hugin will tell you what images need control points by showing you a broken string of numbers. For example: **[0, 1, 2, 3], [4, 5], [6].**



The images that need control points are the ones not in the first string of brackets. For example, image **3&4** need to have manually added control points in order for them to stitch together because Hugin couldn't figure it out. Image **5&6** also need control points added. If it isn't possible to add points, just delete the images then re-align the panorama. This frequently happens with photos of things that don't have a lot of complex detail, such as like clear blue skies or a blank wall, which aren't too important anyway. Once you re-align the panorama, you can then go to the top and click *View > Fast Preview Window.*

Inside the Preview window



Here is your image. You'll notice that the image is in a 2:1 ratio, which is the nature of 360x180's. If you see any harsh lines (like in the example above), these will usually disappear after the final stitch or if you view the normal (non-fast) preview, by clicking *View > Preview.*

If you want it to look like a planet, click the Projection tab and then select "stereographic" from the drop down box. Then, click the Move/Drag tab, and click and hold your cursor inside the picture and move it around to adjust the orientation.

If you are making a stereographic projection, you may notice that the image will look extremely distorted. If you want to fix that, simply slide the bottom slider to the left about 3 centimeters. If you are making an equirectangular projection, just leave the sliders all the way to right and bottom corners.

After you like how your panorama looks, follow these steps to save it as a high resolution image on your computer:

- Close the Preview window (it won't exit the program, don't worry)
- Click on the Stitcher tab.
- Click the *Calculate Optimal Size* button. This makes the image has more resolution.
- Optionally, under *File formats*, change the *Normal Output* from TIFF to JPEG. If you leave the output at TIFF, the file size will be massive.
- Click *Stitch now!*

After clicking *Stitch now! you'll* see the script start to crunch a bunch of numbers. It takes a long time for it to stitch it all together, so I would recommend doing something else away from your computer while it is processing. When it is done, you can open up the directory to where you saved it, and then see its glory and zoom in on it and all that.

Note: You can also "optimize" your stitch before looking at it in the preview window. Click the Optimizer tab and select which parameters you want optimized. This supposedly makes everything more perfect, but sometimes you won't be able to see any difference after using it. I personally use this feature most of the time, but have found that sometimes it can make the final result worse. Remember to preview your image again if you use this feature to make sure it didn't mess up the panorama.

Stitching HDR Images (optional)

HDR is especially useful for 360x180 panoramas because of how large of a space you are photographing. Think about it. There are luminosity values all over the place, especially outside. Some areas of your picture will be in the dark shade, while other areas will be blasting white because of the sun.

In order to get a properly exposed picture in such a wide angle of view, we need to increase the dynamic range. You can do this by taking photos in Aperture Priority mode, or you can take several bracketed shots in Manual Mode. Make sure you are using a panoramic tripod head if you do an HDR 360x180. Taking hand held HDR shots isn't worth it in my opinion, especially for 360x180s, because there is too much possibility for error.

There are lots of different ways to increase the dynamic range in a 360x180 panorama, or for any type of photo for that matter... Do a Google search for “HDR Hugin Workflow”. Also visit the HDR Panoramas group on Flickr.

Regardless of the tutorials out there, here are some different methods you can try out:

Tone-mapping Before the Stitch

Sounds simple enough, and it is. This is my favorite method to creating an HDR panorama. The program Photomatix has a batch processor feature that will chug through all of your images and spit out the HDR tone-mapped versions. You can then import those tone-mapped images into Hugin just like you would with normal JPEG files, then export the stitch like normal.. If you need more instruction, Google search the phrase “Photomatix batch processing”.

Tone-mapping the Entire Panorama

This method as an advantage over the first method because instead of applying the tone-map settings to each individual image before you stitch them together, you are applying the tonemap settings to the entire full 360x180 completed panorama *after* it has been stitched.

Here is how it works:

Lets say that you have a bracketed set of images (say, -2, 0, +2 EV), first load all the (0) exposures into Hugin and align the images, then click *File > Save as...* to save a .pto template that you'll use for the (-2) and (+2) images. Also remember to stitch your (0) images into a JPEG file and then mark down the dimensions of the image size (in Hugin, this should be inside the Stitcher tab, under "Panorama Canvas Size".

Now click *File > New*, load all of your (-2) images in, and then click *File > Apply Template* and then select the .pto file you saved earlier. This will align all of your images together exactly how it did for the (0) set. Now all you have to do is go to the Stitcher tab, make sure the dimensions under Panorama Canvas Size match those of the previous set of images, and then export it as a JPEG (or TIFF..). Then do it for your (+2) set.

By now you should have three equirectangular panoramas saved in a folder.

Tone-map them as you would normally, in Photoshop or on Photomatix. If you are using Photomatix, make sure you have "360 image" ticked on. This makes the lighting even around the edges.

Creating Interactive Panoramas

An interactive panorama is a Quicktime/Flash file where you can use your mouse to scroll around the 360x180 environment as if you were physically there. Here are some examples.

You can create interactive panoramas by downloading Pano2VR or Pano2QTVR from the Garden Gnome Software website.

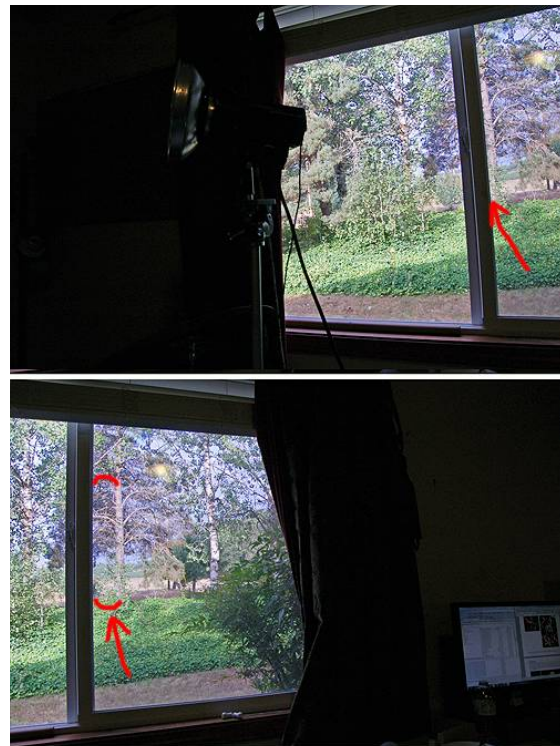
Hugin Tutorials

Before I go on to the next section, one last thing I wanted to mention was that there are a bunch of Hugin tutorials available on their website, just in case you want to learn about more of the features Hugin has to offer.

Perfecting The Stitch using Panoramic Tripod Heads (optional but recommended)

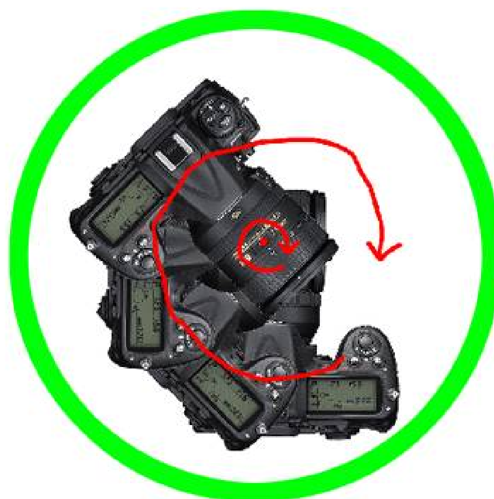
Yes, you *can* take hand-held 360x180 panoramas, but when you do this there will be "parallax errors". An example of this phenomenon is shown on the right. Objects further away tend to shift off-alignment with objects closer to the camera when the camera pans from left to right. Hugin can't deal with this very well, so your panorama will be less than perfect.

Parallax errors are caused by rotating the body of your DSLR (seen lower left) instead of rotating it by the lens (seen lower right). This rotation point (or pivot point, if you will) needs to be shifted to the no-parallax point (otherwise known as entrance pupil) on your lens (seen lower right). Once we find the no-parallax point of the lens, we can then build a custom panoramic tripod head for it for a few dollars.



These two photographs were taken with the DSLR attached to a regular tripod, which as the pivot point under the camera's body (not good). The camera is pointing towards the left in the first shot, and pointing to the right in the second shot. The tree that was originally behind the window column has shifted in the second photo. This is a parallax error.





Finding The No-Parallax Point
To find the no-parallax point of your lens, go inside and find a window somewhere, just like you saw in the example. If your window doesn't have a column, use some masking tape for the reference point.

Get a tripod and put the handle about 110 degrees straight up in the air and then rest your lens on the tip of the handle (as shown on right). Go wide-angle and look through the viewfinder, having the window column to the right of the frame, aligned with something outside. Rotate your camera to the right so the column is now to the left of the frame. You should notice hardly any more shifting occur.



To fine-tune your point, move your lens forward and backward so that the lens rests on the tripod handle in a different spot. When you find the sweet spot, the tree should be aligned with the window column no matter what direction you point the lens. Once you have found this point, take a pen and mark the spot on your lens. You have found the no-parallax point for that specific lens and focal length.

Do another test using the point, only this time move your camera as closer to the window column and find a tree that is as far away as possible. This will test the accuracy. If it still doesn't appear to shift at all, you're golden.

Note: If you are using long zoom lenses like 70-300mm, the no-parallax point can fall behind the camera's sensor. You shouldn't be using telephoto lenses for 360x180 panoramas anyway... Use widest-angle lens you have.

More Resource on No-Parallax Points:
Entrance Pupil Database, *Entrance Pupil Alignment*, *Eliminate Parallax*, *fine-tuning pano-heads*

Panoramic Tripod Heads

If you have money, you can buy a panoramic tripod head anywhere from $80-$400. But, if you are cheap like me, you can make one yourself for a few bucks.



The one I made was specifically designed for my camera, and can only be used with my specific lens, camera, and focal length. The tutorial I used can be found here: How to build a panoramic tripod head. This is probably the easiest, quickest design. Just make sure that when you build it, the vertical side arm that is attached to the base is long enough for your camera to be pointed completely upward, enabling you to take proper Zenith shots. The first time I made mine, the side arm was too short, and I couldn't take a zenith shot.

Taking nadir shots will be a challenge. You won't be able to capture them with a big wooden platform underneath your lens (as you can see on the right). If you don't make the base smaller than tripod platform, you will have to take your camera off the pano-head and throw your tripod to the side, reach your arm out, and point your lens straight down and take the picture while still trying to keep your camera in the same place. It is difficult, but if you get it right and Hugin can stitch it correctly, then yahoo! If not, then you will have to fill in the missing spot in Photoshop by using the Clone-Stamp Tool.

In order to capture good nadir shots, make the base of your panoramic tripod head take up as little space as reasonably possible. There is also a little trick which can be done in post processing. Watch this video at 6:23, and then to learn how to post-process your nadir shot, watch part 2.

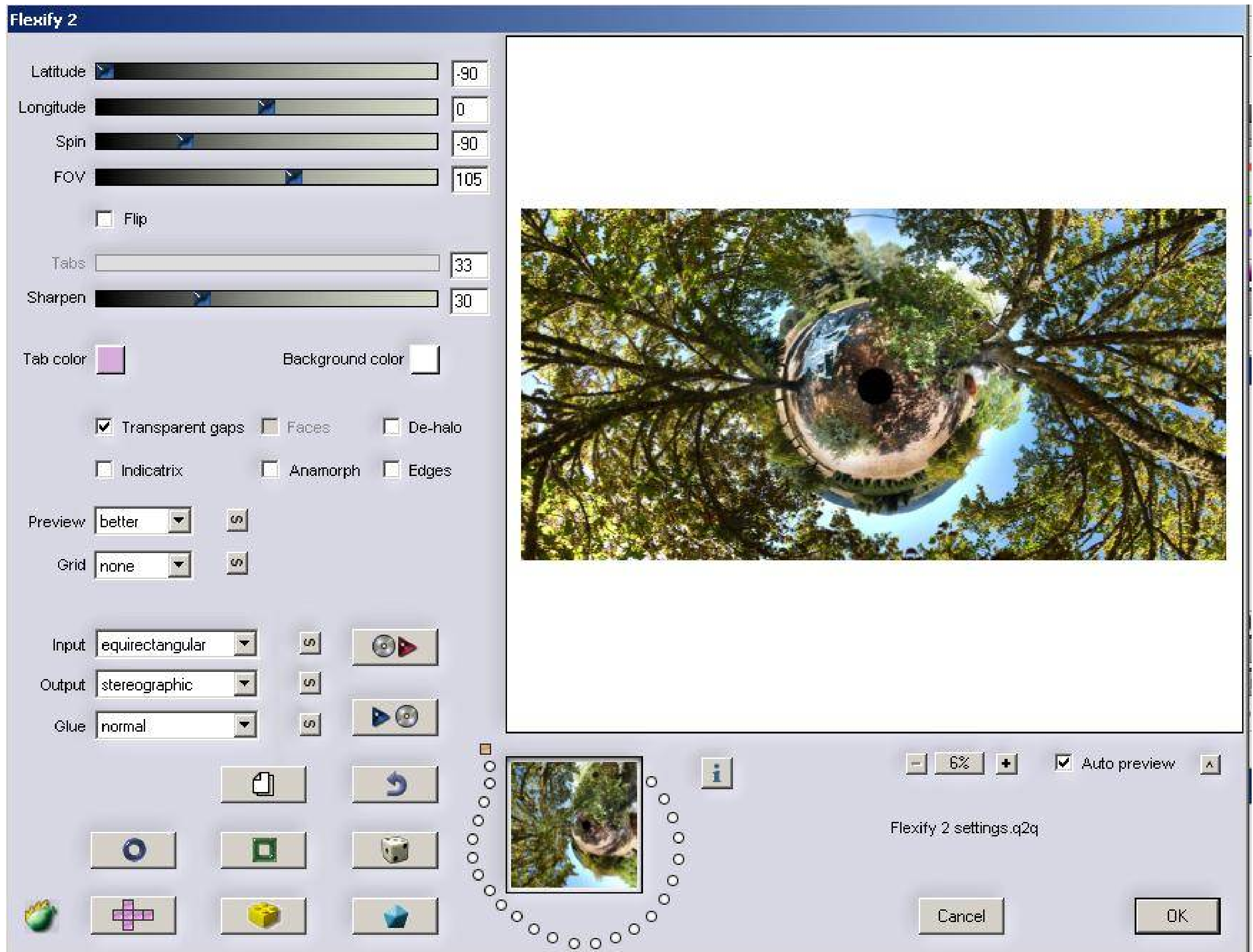
There are other panoramic heads where you can adjust the head for any lens/camera combination, but I couldn't find any useful DIY tutorials of these online. It would probably be better just to buy one of those anyway. The build quality is better, and it will have accurate markings on the tripod head to help guide you in finding the no-parallax point with no error. They also include bubble levels to make sure your tripod is perpendicular to the ground.



If you want to purchase a panoramic tripod head I recommend the Nodal Ninja. It's not cheap, but if you are dedicated to this kind of photography or money isn't too much of an issue for you, then the Nodal Ninja is pretty much the way to go.

Manipulating Panoramas in Flexify (optional but recommended)

Flexify 2 is an *excellent* Photoshop plug-in. It is specifically designed for manipulating 360x180 panoramas and it's what I use all the time. In order to use Flexify properly, you need to stitch your images using Hugin first. Make sure you stitch them in **Equirectangular** mode (not stereographic). Once you've saved your equirectangular panorama, open your image in Photoshop and click on *Filter > Flamingpear > Flexify*, assuming you already purchased the Flexify plug-in and put it in your plug-ins folder. This is what Flexify will look like:



Next, select the input to be Equirectangular, and the output can be anything you want. If you want it to look like a planet, select Stereographic or Hyperbolic as the Output. Then, set the Latitude to -90, or 90 if you want it to be a tunnel. If you want to adjust the field of view (zoom), mess around with the FOV slider. Keep in mind that if you slide the FOV slider it too much one way or the other, your image will look very pixilated and distorted. Also, keep in mind that if you want this to be a square image, you will have to resize it in Photoshop *(Image > Image Size) (example: change 1000x2000 to 1000x1000)* before you open it up in Flexify. I didn’t do that in this example, which is why the image has a 2:1 ratio and not a 1:1 ratio.

As you have probably noticed, there are lots of output options in Flexify. A lot of them are cut outs, meaning that the image isn't projected to fill an entire rectangular frame. Here is a list of some of the ones that *do* fill up the entire frame.

- Rectilinear
- Hyperbolic
- Stereographic
- Cylindrical
- Wetch (this is very wide)
- Square
- Swoop
- Oculus (Apparently this is like Stereographic, but the distortion is near the center instead of the edges)
- Triptych
- Tetrapytch
- Shift Lens
- Mercator (you can make little lumps)
- Tetra Tile
- Hyperdouble (Two 360's side by side morphed into each other!)
- Hypertriple
- Mercator Cross
- Mercator star
- 4 Views, 12 Views, 24 Views, 60 Views, 72 Views
- Equi Tall
- Semistereo
- Squoculus
- unFish
- Lagrange Plus
- Stereo Twice (this is like two mirrored Stereographics merged together)
- Stereo Thrice
- Equal-Area Cylinder
- Equal Squarea (who comes up with these names, anyway?)
- Square Fish 1
- Square Fish 2

I've made some examples of these different types so you can see what they look like on the next page. Additionally, you can see some graphical representations of different 'projection mappings'.



equirectangular,



square,



peirce,



mercator cross,



stereographic,



hyperdouble,



hyperdouble,



equirectangular



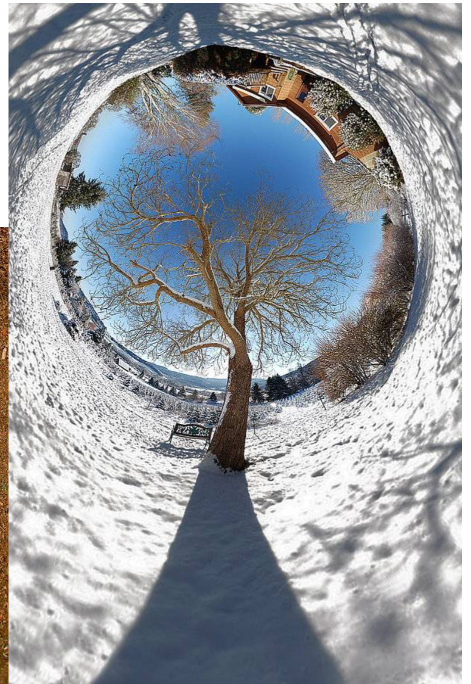
stereographic with latitude at -90,



stereographic with latitude at +90.

Creative 360x180 Compositions

360x180 panoramas are extravagant by themselves, but when you have an eye that looks for composition, you can get even better results. A lot of it comes down to experimentation, but there are some compositions that will guarantee spectacular results.



Working with Trees

A beautiful technique to use is to stand about 1-20 feet from large tree (preferably with no other trees around the horizon or anywhere else) and then take a 360x180 panorama. Once you project it to stereographic form and move some sliders around in Flexify to make it a tunnel, the composition can come out beautiful.

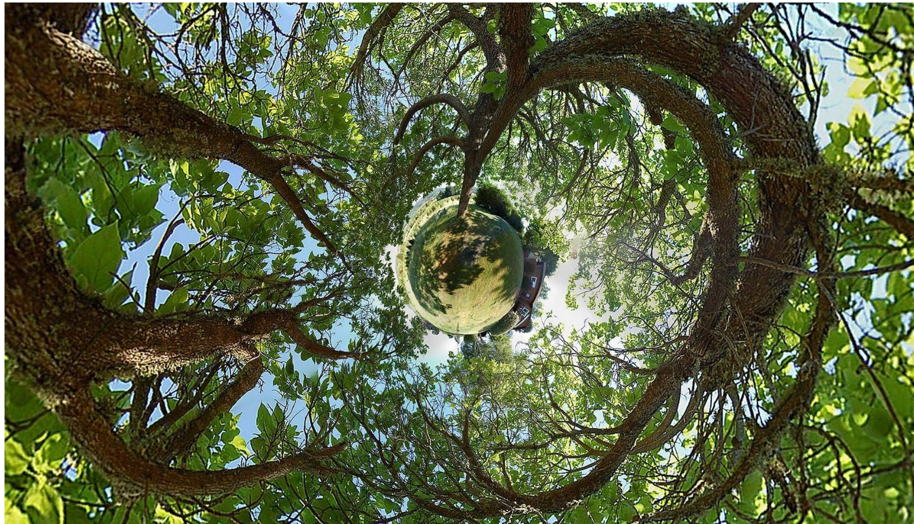




Positioning the camera down near the ground can add interesting perspective to the image. It will appear like the tree is shooting straight up. This image below was shot with a Manfrotto 055XPROB tripod. This tripod has legs on it that can collapse all the way down to the ground, so the camera was about 4-6 inches above the ground and about 1-2 feet away from the tree. This was pretty difficult considering I'm 6 ' 3" and the camera I was using didn't have live-view. Strenuous.

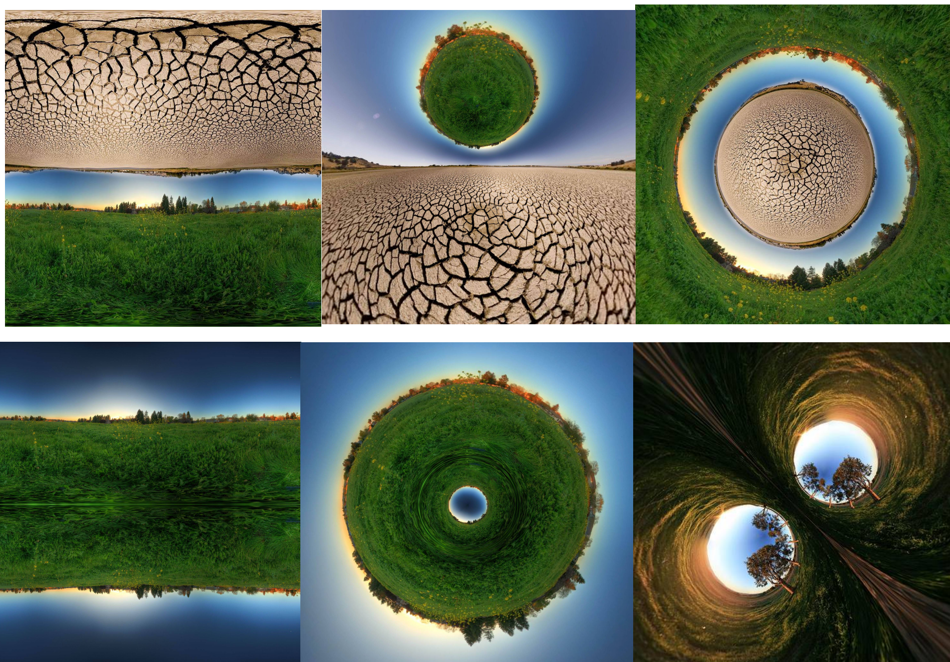
I had to clone out the tripod lens in Photoshop later on, but this wasn't too much of a problem because the only thing around the tripod legs was grass.

Another interesting composition technique you can use with trees is to stand about 3-10 feet close to a tree that has many overhead branches. This blocks out the boring view of the boring bland sky and fills it in with something much more interesting: the branches from the tree.



It's best when the tree has really widespread branches. I happen to have two areas like this on my property. The orange image below was taken in October while I was standing between two trees with widespread branches. The green image above was taken in my backyard during summer. The branches were somewhat low to the ground but also widespread, making the entire frame filled in with leafs.

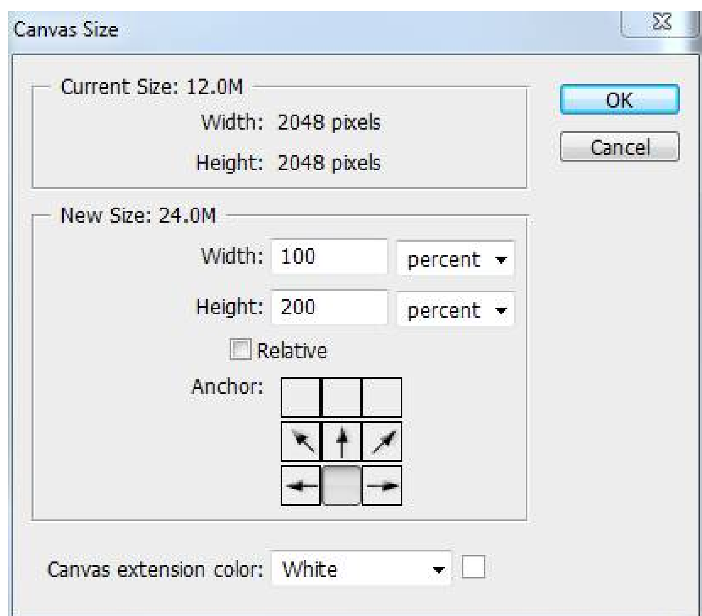




Original Equirectangulars created by Josh Sommers.

Doubling Up

You can also double-up your panoramas by either mirroring them (bottom left) or putting two different ones on top of one another (top left). After that, simply play around with the longitude, latitude, spin, and FOV sliders in Flexify to adjust the image to your liking (middle images). Please note that it is okay to stretch the land out more to fill up the frame with something more interesting than blank sky. That is what I did with the top left image. If I didn't do that, there would be a lot of more sky.



In order to mirror the image, download a free Photoshop plug-in called QuickMirror and put it in your additional Photoshop Plug-ins folder (you can assign this folder in *Edit > Preferences > Plug-ins*). After you have done that, restart Photoshop and open an equirecangular image in Photoshop and then go to *Image > Canvas Size*. Make sure "Percent" is selected in the drop down box and then type in "200" for the Height value. Leave the Width value at 100. Click the middle bottom tile or the middle upper tile. This makes it so there is blank space above or below your image. Click OK. You should now see a bunch of blank space above or below your image. Now go to *Filter > Mehdi > Quick Mirror.* The plug-in will instantly mirror your image. Now play around with it in Flexify!

If you want to put two *different* equirectangulars in one frame, do the exact thing as described above except after you increase the canvas size, instead going to the QuickMirror plug-in, simply drag and drop (or copy and paste) another equirectangular image of your choice onto the empty space. In order to flip it, make sure the layer is selected, then push CTRL+T and rotate it by grabbing onto the corners of the selection. You can also just right click inside of the selection and click "flip vertically" or "rotate 180 degrees".

People and 360x180 Panoramas

Including a large group of people in a 360x180 panorama makes a very interesting composition. The best compositions I've seen is where there are about 10-40 people all standing in a circle around the photographer (the more the merrier!). The models can either be holding hands, or have their hands up in the air, it is up to you to direct them. Make sure that you tell them to hold still so you can stitch the images together with minimal error.



Multiplicity and 360x180 Panoramas

The basic multiplicity technique is described in a separate chapter. Please read it in order to understand what 'multiplicity' means.

The quick-and-easy way of combing multiplicity and 360x180 panoramas is to simply stand in the middle of each frame when you are taking the photos one-by-one. That is what I did in the example on the right. There were some errors, though: Hugin cut off my legs and replaced it with just grass (click the image for hi-res version). In order to prevent this 'error' from occurring, make sure that you are standing in the middle of the frame and that you are not included in the area where the photos overlap, both vertically and horizontally.





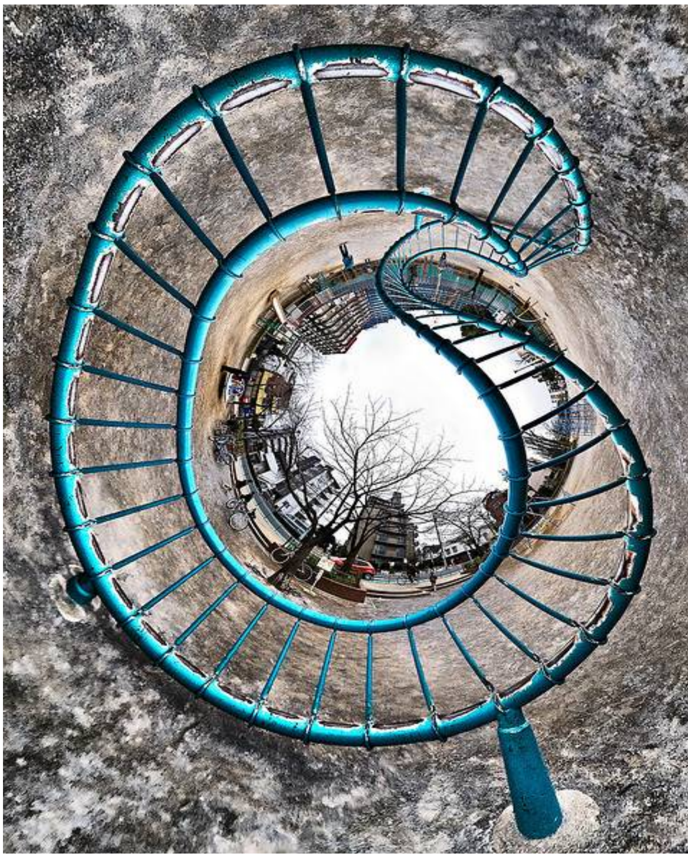


If you want to do the actual multiplicity technique where you use layer masks to fit more clones in the same frame, you will have to take multiple exposures (I would definitely use a remote for this) and then combine all your frames in Photoshop as you would normally (see the Multiplicity chapter int his ebook). When all your frames are re-saved with all the clones in the right place, you can then load them into Hugin and stitch them together.

The 2010.2.0+ version of Hugin has a new feature that enables polygon masking right inside of Hugin. This allows you to fix any stitching errors where the model is on the edge of the frame. PTGui is slightly better in this regard because you can use a brush rather than a polygonal selection. More information about this specific technique will be on the Trick Photography and Special Effects video version.

If you need help using the Mask tab in Hugin, head on over to this tutorial.





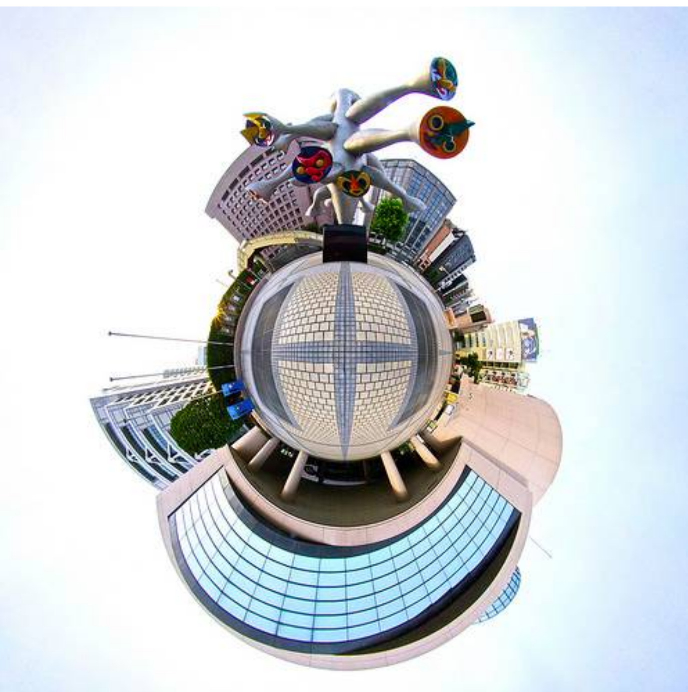
Ahh, the possibilities with 360x180 panoramas are endless! They offer so much creative potential.

The example on the left of this text is a play structure. The original equirectangular is right below it.

This concludes the 360x180 chapter. Here are some more examples for inspiration!









Pseudo Planets



Okay... I was kidding about concluding the chapter. There is still one more thing I wanted to include: Pseudo 360x180 Planets. These aren't the real deal, but they are easier and faster to create. The reason why they "aren't the real deal" is because the original image you are making the planet from is not a compete 360x180 equirectangular panorama. Usually the panorama is made up of 5-10 images... sometimes only 1 image. You will see a lot of distortion around the edges and near the center and edges of the frame when using this method, which is why I consider this to be the *alternative*. The advantage of pseudo planets over real 360x180's is that you don't need any panoramic tripod heads, Hugin, or Flexify. All you need is Photoshop and you are set to go. My tutorial is below, but you can also read this blog post which has illustrations.

Step 1: Either take a single row 360 degree panorama, or take a single picture. It really doesn't matter. If you take a full 360, the image will wrap around seamlessly. If you take a single picture, you will have to improvise a little and either mirror the image horizontally or use the clone stamp tool to make it wrap around seamlessly. Make sure to straighten the horizon as much as possible. You can go to *Filter > Other > Offset*, and then offset the image horizontally a bit to check to see how it will look wrapped around. I suggest offsetting the image and then use the clone stamp tool with a big, soft brush, and then just ALT+Click about an inch away from the harsh line you see, then simply draw over the line to blend it out and get rid of it.

Step 2: Once you have your image loaded into Photoshop and it is straightened out -- whether it be a single row 360 panorama, or a single picture -- change the aspect ratio to 1:1. You can do this by going to *Image > Adjustments > Image Size*. Uncheck "Constrain Proportions" and change the dimensions to a 1:1 ratio.
(example: change 9000x3000 into 3000x3000 pixels).



Step 3: Turn the image upside down by going to *Image > Image Rotation > 180*.

Step 4: Apply the filter: *Filter > Distort > Polar Coordinates*. Select *Rectangular to Polar* and click *OK*. There you go! Here is your pseudo planet.

***Note:** If you don't rotate the image 180 degrees before you apply the filter, it will be a tunnel/tube, not a planet.*

The Droste Effect


This is Josh Sommers, a major contributor for making the droste effect known on Flickr.

The Droste Effect basically takes a part of the image and repeats the image as a whole into that part. To quote Wikipedia: *"The Droste effect is a specific kind of recursive picture.... An image exhibiting the Droste effect depicts a smaller version of itself in a place where a similar picture would realistically be expected to appear. This smaller version then depicts an even smaller version of itself in the same place, and so on."*

The droste effect can be applied to any image, but ones that work well usually have some sort of shape or hole in the picture where you can apply the effect. This is done by using a droste effect filter.

Using the Filter Plug-In

To apply the droste effect to an image, you will need either **GIMP+Mathmap filter+The droste code**, or **Pixel Bender+Droste.pbk**. Both methods work pretty much the same with only minor differences.

The biggest difference I found was that the Pixel Bender method can only have a maximum image size of 4000x4000 pixels (at least, on my computer anyway), but the Mathmap method can handle any image size.

Pixel Bender is able to process the information by GPU, so if you have a graphics card it will be much faster than relying on your CPU. The preview window is also larger in Pixel Bender. Below are instructions for installing and opening up the filter for both methods:

The "GIMP+Mathmap filter+The Droste Code" Method
Step 1: Download and install GIMP.

Step 2: Download and install Mathmap (this is a plug-in/filter for GIMP)



Step 3: To apply the droste effect to an image inside of GIMP, open an image and then click *Filters > Generic > Mathmap > Mathmap*.

Step 4: Copy this droste effect code and then paste it inside of the mathmap plug-in in the Expressions tab.

Step 5: Push the preview button, and then click the User Values tab. Your controls/sliders are here.

If you are having trouble getting it working, take a look at the comment section of the link in step 4.

The " Pixel Bender+Droste.pbk" Method

Step 1: Go to this web page and scroll down to where it says "Pixel Bender Plug-in for Photoshop CS4" in bold text and follow the instructions. There is a link right underneath for CS5 instructions.

Step 2: Download this Droste Effect Filter and put the Droste.pbk file inside of your "Pixel Bender Files" folder. This should be in *C:\Program Files\Adobe\Adobe Photoshop CS5*

Step 3: Now we are ready to open up the image and convert it to a droste pattern. There are two ways of doing this: you can either use the Pixel Bender as a Photoshop Plug-In, or you can use it inside a standalone application. If you want to use it as a plug-in, it should be listed under *Filter > Pixel Bender > Pixel Bender Gallery*. After you click that, you should see "Droste" listed in the dropdown box. Click that and start messing around with the sliders.

Note: I find that, for me, using it as a Photoshop Plug-In never works. It can work at times, but it usually crashes Photoshop. I don't know if it is just my computer (Windows 7 64bit) or if it is like that for all computers. You can try it out inside of Photoshop as a Plug-In, but if it crashes... don't come crying to me! If it works for you though, then great! It will make things really convenient.

If you want to use the droste filter inside of the standalone application, Pixel Bender Toolkit 2, then simply go to your start menu, go to your program list, find Pixel Bender Toolkit 2 and open it up. The actual program should be installed inside of *C:\Program Files (x86)\Adobe\Adobe Utilities - CS5\Pixel Bender Toolkit 2\Pixel Bender Toolkit.exe* just in case you can't find it. Once it is open, click *File > Load Image 1* and select your image. Then, click *File > Open Filter* and then select the Droste.pbk file we downloaded in step 2.

Now, in the bottom right corner of the window, click 'Build and Run'. You should now see a bunch of sliders on the right side of the window, these are your controls. I'll go over how to use them in the next step. But before I do, there is one more thing you should do before you continue to mess around with your picture. At the top of the window, click *Zoom > Fit to Screen*. Always remember to do this when you open a new image. Every time.

Step 4: Lets make a droste spiral with all the sliders on the right side. This may look intimidating but don't worry, just take a look at this web page. It tells you what the sliders do and which ones are important.

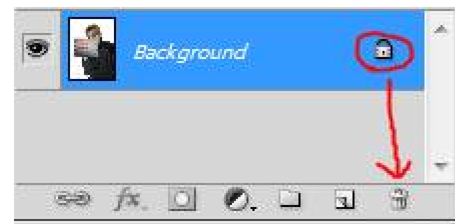


Choosing The Right Image and Creative Compositions

A common composition people use for their first droste picture is to take a picture of themselves holding up a picture frame. I'm going to go over how to do this so you can get a basic understanding of the droste effect.



Step 1: Here is the photo that I am going to apply the droste effect to. What I need to do is erase everything that is in the picture frame. To do this in Photoshop you will need to make sure your layer is unlocked. In order to do that, simply go to your layers window and then drag and drop the lock icon into the trash bin, as shown on the right. *Note: If you are using GIMP, right click on the image and click Layer > Transparency > Add Alpha Channel.*



Step 2: Now you will need to erase everything that is inside the picture frame. You can use the Eraser tool if you want to, bat I like to grab the Polygonal Lasso tool to select the basic interior of the frame, then use the eraser tool (or the pen tool) to erase the part around the finger tips:

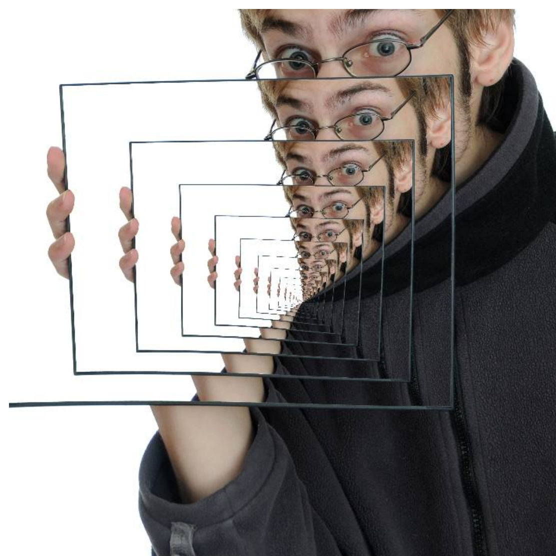




If you are using GIMP or the Pixel Bender Plug-In for Photoshop, you can immediately start messing around with the Droste filter. However, if you are using Pixel Bender as a standalone application, you'll need to first save the image as a .PNG file (to save transparency) and THEN import it into Pixel Bender.

Step 3: If you are using Pixel Bender, the first two sliders should say "size". Put the dimensions of your photos on these sliders. For example, if my image was 200x300, I would put 200 for value of the first slider, and then 300 for the value of the second slider. In this example I'm using 4000x4000. Also, don't forget to click Zoom > Fit to screen. You won't have to worry about either of these things if you are using Mathmap.

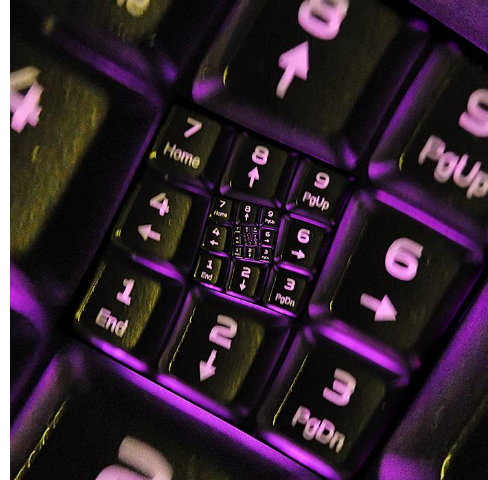
Step 4: Adjust the inner radius, outer radius, and levels until you find something that works. Experiment! For this example, I simply made the inner radius 100, the outer radius 72, and the levels to 20. That was it. If the picture frame wasn't in the center of the image, I would probably have to adjust the centerShift or the size.



Try experimenting with different amounts of space outside and inside of your picture frame (or whatever object you are holding), it is usually best to have more space around the object then less. If you have too little, blank black bars will start to appear because there is nothing there to fill in the empty space.

The transparency cut-out of your photo can be as simple or as complex as you want to make it. In fact, you don't even have to use transparency at all if you don't want to. Take a look at these examples below. None of them used transparency. This is possible by cropping specifically what you want to have spiral down. The phone looked cool but the lighting was not 100% even across the whole frame, this is why you can see the edges of the rectangular spiral. The keyboard image on the right is a little better when it comes to not being able to see the harsh lines, but it is still noticeable.







If you want to use this non-transparency method on circular shapes, you will have to UN-tick the “transparentInside” check box in Pixel Bender. If you are using Mathmap, TICK the “NoTransparency “ check box.









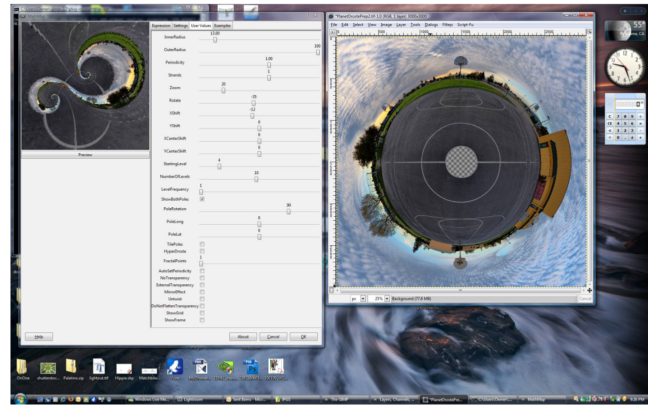






Spiral Planets

Remember the 360x180 chapter that was earlier in this book? Well, it turns out those awesome planets can get even awesome-r when applying the droste effect to them... Take a look!



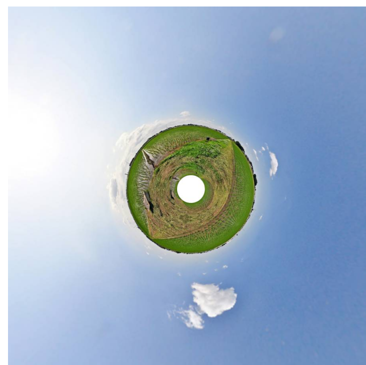
This is a screen shot of the settings Josh Sommers used in MathMap to get the crazy swirls that you see below. Click the image to enlarge it, or click here for the Pixel Bender version.



I like to call them spiral planets because that is just what they are. Feel free to get fancy with layer masks and adding additional elements like clouds, suns, etc. like Tom Kiel did in the photo above. Make it a work of art and not just a some by-product from a mathematical process. I love this hole-in-one-like concept he did, don't you?

You will have to mirror your original equirectangular, make it into a planet with plenty of sky, and erase the middle hole. Then you'll have to bring it into Pixel Bender and mess around with the values until something looks good. That's what I did anyway (see the sequence of the three images below that shows each step). There are better ways to do it that give higher image quality but they are complicated and go outside the range of this book. If you would like to learn more on how to create high quality spiral planets, please take a look at this discussion thread.







More Creative Applications



You can also use two or more different images when using the droste effect. The results will be stunning.

“I took two images using a tripod. I found the suitable droste parameters on the first pic, saved them, and used the same on the second one. By doing that they are 100% aligned.

After that I added them as two layers, and simply used a layer mask to mask away the top layer (the rubber tool can be used as well, but less flexible).” - Oyvindi





These three photos are by Photos by Michael LaPalme.

Even though the effect produces a never-ending spiral, this is the end of the droste effect chapter. If you are confused or just want more resources on it, head on over to the Droste Effect Print Gallery group on Flickr. They have droste images there and can answer any questions you have. You can also head on over to the Mathmap group if you are only using Mathmap for your droste images.

Time-Displacement Photography via Scanner



Normal DSLR cameras record the light all at once as soon as it hits the sensor. With scanners, however, the light is recorded by having a strip of light go up and down the frame very slowly to light up your subject. You can use this to your advantage to create some really stunning flesh manipulations.



In order to twist and morph your face as you see in these images, you need to move your face up and down along the strip of light as it moves. Remember that the light is only being recorded where the strip of light is.

The image above had the cathode light in a vertical position (as seen in the reflection of the glasses) that moved from left to right. For the first few seconds that the light was moving from left to right, my face was held still so the scanner could scan my face like normal, but right when it hit the middle of the chin, I stared slowly lifting by head upward, making sure to keep it in line with the cathode as it moved, then stopped to let the light finish recording the other half of my face.



There are a lot of different combinations of shifting, tilting, and rotating you can implement when using a face, body part, or object on your scanner.



Note: If your into this type of thing, it has also been done using video. Here is a popular youtube video that shows time-displacement.

The Harris Shutter Effect



This effect can be done in DSLRs as is, but it can also be done in Photoshop.

Step 1: Put your camera on a tripod. Don't move it.

Step 2: Take three photographs of a person, animal, or object in a different position around the frame.

Step 3: Place all three photos into one Photoshop document as three separate layers.

Step 4: Copy either the entire RGB layer or a single, red, green, or blue channel by clicking on the channels tab, and then replace one of the red, green, or blue channels onto the bottom layer. You'll need to do this twice if you want three color variations of your subject. After you have pasted the layers into a channel, your channels pallet should look like the *one below.*
Note: If you can't find the Channels pallet, just click Window > Channels.







The photograph will render normal color in areas that remain stationary throughout each of the three photos The example on the right is an elevator. The camera was placed on one of the steps so that the steps are in the same position but the environment around the steps are in motion. Pretty funky huh?

More resources on this effect can be found here:
http://en.wikipedia.org/wiki/Harris_Shutter
http://content.photojojo.com/diy/make-a-color-photo-using-black-and-white-photos/
http://www.flickr.com/groups/harrisshuttereffect/

PHOTOSHOP



PROJECTS

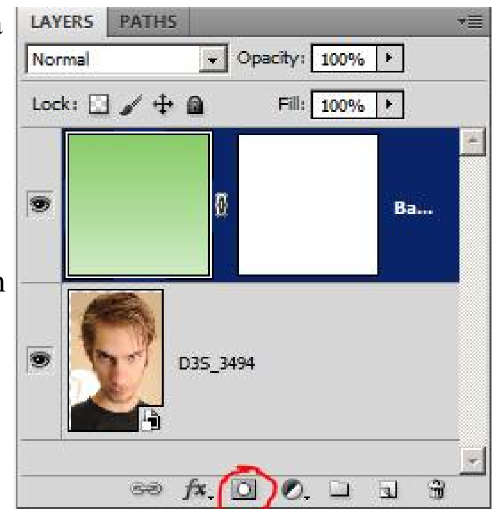
I know that we have been talking about Photoshop all throughout this book, but this is where photo-*manipulation* comes into play. We are no longer making simple color and exposure adjustments on our pictures, but are manipulating them completely. Prepare to get your hands dirty.

Introduction to Layer Masks and Blending Modes

What the heck is a “layer mask” any way? It is called a “mask” because it is similar to a mask that you wear. The mask hides certain areas and reveals certain areas of your face (or in this case, your layer inside of Photoshop). If you are new to layer masks, watch this youtube video to get a further understanding of them.

Even though there is a way to cheat and simulate layer masks in Photoshop Elements, layer masks are best used in Adobe Photoshop CS or above. GIMP also works.

On this page I am going to tell you how to make a layer mask; on the following pages I'll show you how to apply them creatively.



Layer masks are used when you have multiple layers inside of a Photoshop document. You can get multiple layers inside a Photoshop document by dragging and dropping the files into Photoshop, copying and pasting them in, or by clicking *File > Scripts > Load Files into Stack*.

Once you have two or more layers in your document, you are ready to make a layer mask. Click the button in the red circle on the right. You will see that a new white layer mask has been created to the right of your layer.

Click the white empty layer mask to select it, and then grab a black paintbrush and paint over it. You will discover that, by doing this, the black reveals everything that is below the layer mask, and the white hides everything below the layer mask.

A layer mask is just like using the eraser tool, only you can erase part of the layer and bring it back in later in case you messed up. In the example below, I have literally created a mask on my face by using a layer mask! Ha!



It is also worth pointing out that the 'Opacity' simply means how transparent the layer is.

When you click the drop down box that says “Normal” it will reveal all of your blending modes. **Blending Modes** are how the colors and tones blend into the layer that are underneath that layer.

For example, If I choose Lighten or Screen as my blending mode, it will take only the lighter tones of my layer and make them visible on top of the layer beneath it. If I choose Darken or Multiply, it will only take the Dark tones and make those visible. Experiment with the blending modes and watch this video to learn more about them.

Head in the Pot

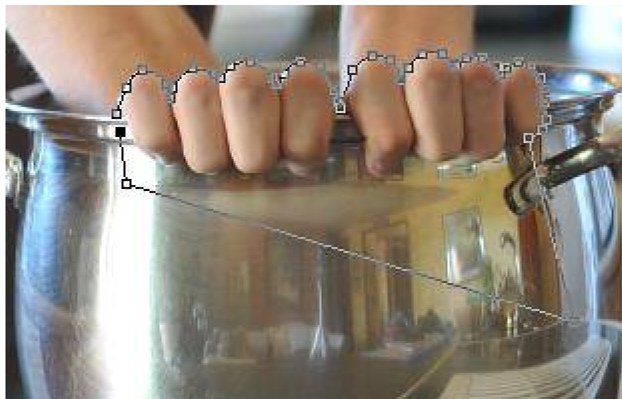
Let us get used to using layer masks. In this trick we will get a person's head to appear to be inside of a cooking pot on the stove. First, take three pictures (all in **manual mode** with a non-automatic white balance and manual focus to maintain consistency between all three photos), one of just the pot in the frame (this is really just an optional backup background layer), one with your hands grabbing onto the edge of the pot, and one of your head above the stove in the same position where the pot was.

Here are the three photos that I took:



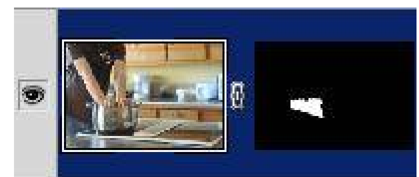
the third photo in this strip shouldn't have had the pot actually in the frame, but it turned out okay

After you have taken your photographs, load them up as layers into a new Photoshop document. You can do this by dragging and dropping them, copying and pasting them, or by going to *File > Scripts > Load Images Into Stack*.



Once they are in the same document as layers, grab the Pen Tool and make a selection around the hands (If you need help with the Pen Tool, watch this video. If you zoom in to 400% or so you can get a more accurate selection.) Your path should look like the screen shot on the left. After you have closed your path, right click inside of it and click *Make Selection...* and feather it by .3 pixels and click Okay. You should now have the “marching ants” around the hands.

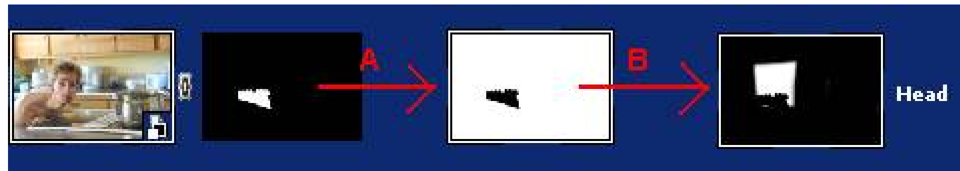
Make a layer mask specifically for the selection we just made by clicking on the [icon] button in the Layers window. Simply make a layer mask on the layer with the hands as you would normally. It should look like the image on the right.



Now we need to duplicate the layer mask onto the layer with the head. This is a little tricky so read carefully. Click **once** on the layer mask only to make sure it is selected. Hold [Alt + Ctrl] and then drag and drop the layer mask onto the layer with the head. The mask is now duplicated.

A. Invert the newly duplicated mask by making sure it is selected and then hitting [Ctrl + I]. The blacks and whites are now reversed.

B. Grab a black brush and paint over everything except the head. This will hide everything but the head.



Our final image should look like this:



As you can see, the top layer reveals the head, and middle layer reveals only the hands and some of the pot below it, which blends into the bottom "Pot" background layer. Once you are satisfied with your masking, flatten all the layers together by going to *Layer > Flatten Image*. You can then adjust the curves, colors, etc. to the overall image. I actually missed a spot on the top right corner of the pot, can you see it?

Extra: If you wanted to add steam coming up from the pot, simply create a new layer and then draw some thick lines coming up from the pot with a white brush, then blur them by going to Filter > Blur > Gaussian Blur. Lower the Opacity on the layer to 2%-50%.











This was pretty much the exact same thing as the head on the pot, except this time I was in a wheel barrow.

Shadow Illusion





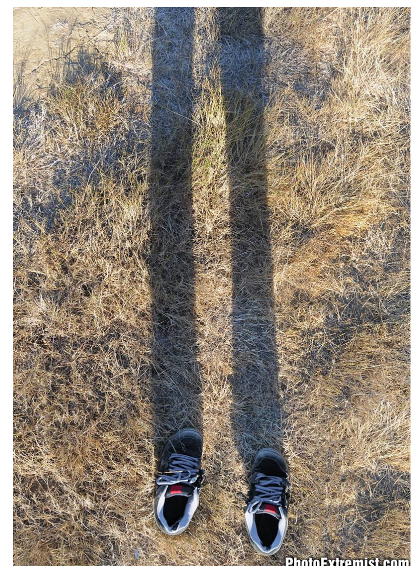
D3S_4756



D3S_4757

Here is a fun photo trick that can be done when the sun is out. Simply take one shot of a model standing in your shoes and then another shot with the model out of the shoes and out of the frame. Then put them together in Photoshop with the person layer as the top layer and mask-out the person. Wha-la!

Make sure the model keeps the shoes as stationary as possible. You will need to have your camera on a tripod for best results when doing this. If you don't have a tripod, you can get away without using one by aligning the layers in Photoshop. This can be done by unlocking all the layers, selecting all the layers, and then clicking *Edit > Auto-Align Layers*.



Building Window

The shot of the building was taken right across from a hotel room I was staying in. The person that appears to be inside of the building is my friend inside of my room. I took the picture outside of my house at night, and then superimposed him in the building later. It's all about using the layer masks, people!







Bug-Eyed



Here is a trick that is fast and easy. Take two photos, one where both of your eyes are looking up and one where both of your eyes are looking down. Make sure that your camera is on a tripod and your head is as still as you can make it. Put the two photographs into a Photoshop document as two layers and erase one half of the image or use a layer mask. Bam! You are done. Wasn't that easy?

Escaping the TV



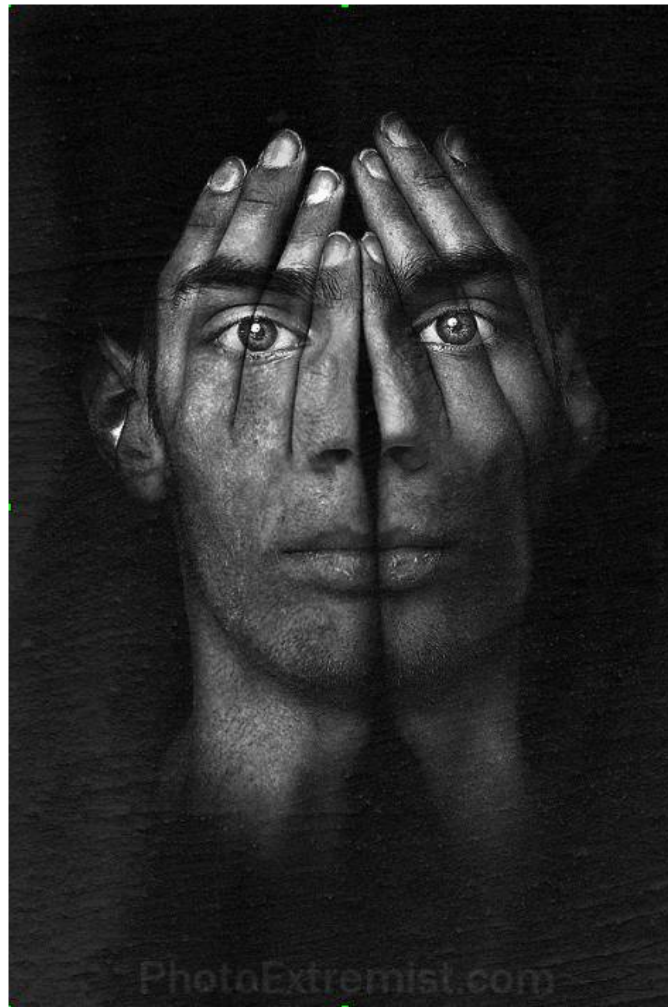
Shot #1 only had the TV in the frame with nothing else.

Shot #2 had the TV removed from the frame, and myself laying on the floor, reaching my head up. Both images were taken on a tripod to keep the camera in the same position.

I put both of the files into a Photoshop document as two separate layers. The picture of myself was the top layer, so all I had to do was erase everything past my neck down using a soft brush on the layer mask and the photo was done. Here is another similar photo using an almost identical composition... only this is of a skull instead of a TV.



“Insomnia”



I took a photograph of myself with the camera on a tripod and my head in front of a black t-shirt that was pinned to the wall with an external flash pointing towards the wall I was facing so the light bounced off the wall and came back at me more spread out and diffused.

I took another photo with my head in the same position, only this time I put my hands over my face.

After that, I took the two images and put them in the same Photoshop document as layers, and set one of the layers to either the Multiply blending mode, Overlay, or something else (just try different ones until you like the way it looks).

Flatten the image (*Layer > Flatten Image*) and burn the blacks entirely to 255,255,255 black (this is optional) by going to *Image > Adjust > Selective Color*, select the blacks and then slide the slider to make it more black, then burn other areas if necessary to make everything but the face completely black.

Next, I grabbed a texture and darkened it with curves, then put it on as a new layer on top of the original image with Lighten or Screen as the blending mode. Adjusted the opacity, flattened the image, downsized, sharpened, added URL to the bottom and Save As..

I also erased the very top of my head/hair so it was just the finger tips showing.

Multiplicity Photography

In this article I'll explain how you can easily clone yourself with a camera and Photoshop. People call these "multiplicity photographs". It's also known as Sequence Photography.



I had a friend take these; every time I got into a new position I told her to take a new shot. It went by quick and easy. I selectively replaced the sky with a more dramatic one (by using layer masks) and added birds. I also did some dodging and burning on the play structure.



Taking the Shots



Put your camera on a tripod and tighten it so it won't move. Focus your scene and then switch to Manual focus so that your camera won't constantly be trying to re-focus the scene. Switch to manual mode on your camera so you can manually adjust the shutter speed and aperture, this ensures that each photo has a consistent exposure. After everything is in focus and you have your shutter speed and aperture set, take a picture of the scene with the model to the left of the frame. Then, take another picture of the model closer to the right of the frame. Keep taking pictures until the model works their way all the way to the right of the frame.

You can get a friend, use a remote, or set your camera on a timer to help you take each picture. If your friend is pushing down the shutter button on the camera, make sure they are careful on keeping the camera perfectly in place and not accidentally bumping into it or something.

Inside of Photoshop

Once you have all your photos taken, you need to import them into Photoshop. Click *File > Scripts > Load Files into Stack....* Then just select your images and wait a minute for them to compile. *Note: if your version of Photoshop does not have the 'Load Files into Stack' option, you're going to have to manually copy and paste the pictures into the same document to stack the layers on top of one another.*

Once it is done processing, you should see all your pictures in the Layers window. Select the top layer and click the New Layer Mask icon (it's located at the bottom of the layers window). Next, take a black brush and brush over the entire person in that frame. The person will seem to be erased at first, but to un-erase it, hit CTRL+I, (cmd+I if you are on a Mac). You can now see the person in the first frame, as well as the one in the second frame! Make a layer mask like that for all the frames and then you're done! You can also do this with objects, animals, skateboarders, etc.



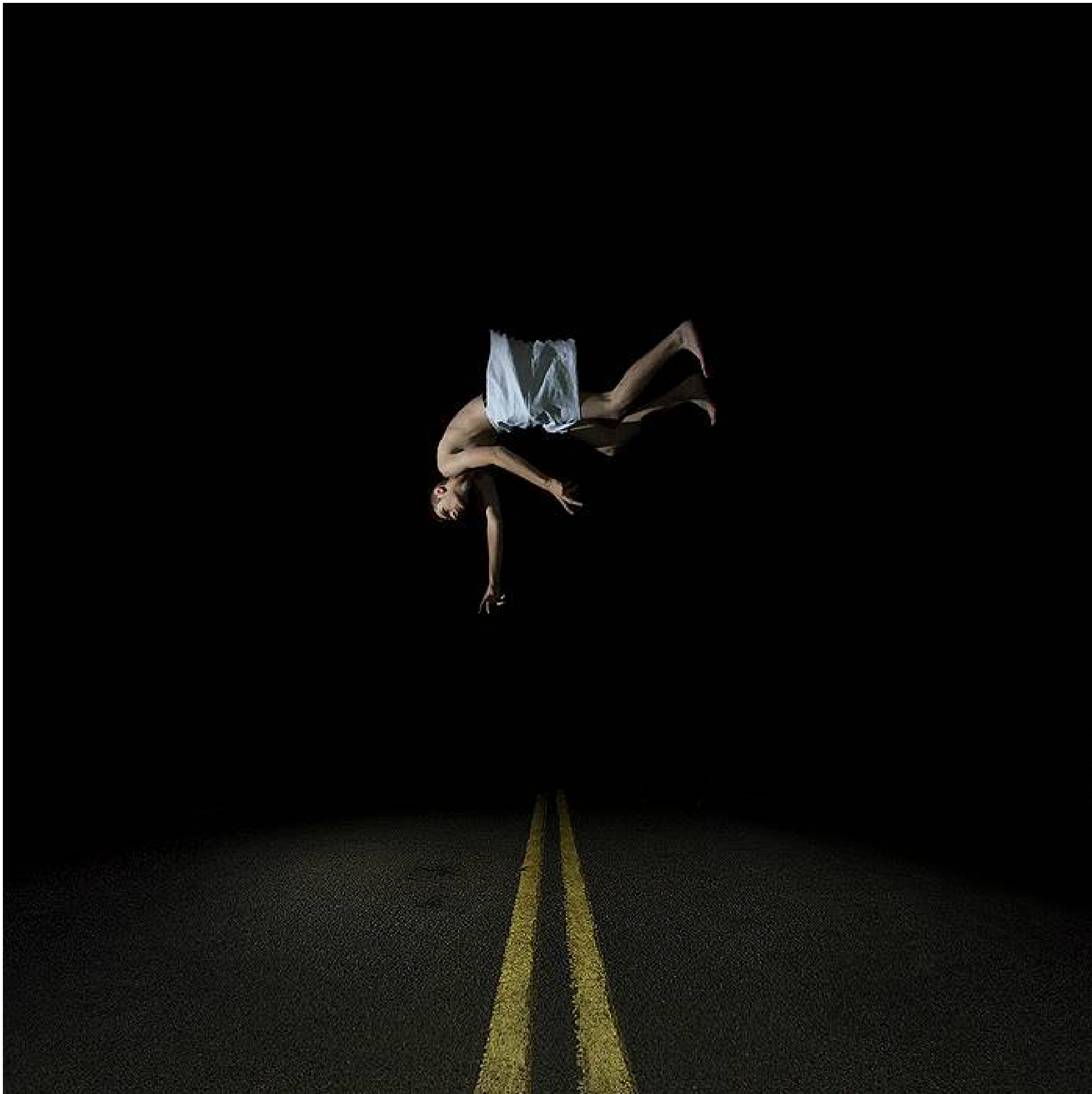
None of the clones were overlapping each other in this photo, this made it very easy to mask the model without tediously going into fine detail with the brush tool.

If you would like to see some spectacular examples using this photography technique, take a look at the 20 Stunning Examples of Multiplicity Photography.

Check out my multiplicity video walkthrough if you need more help.

Levitation Photography

Levitation photography is a great photography trick that has always made me smile. The best thing about levitation photography is that it looks real.



This is somewhat of an unusual example of levitation photography because the model (me) is very high in the air, and is also upside down. To be more accurate it would probably be better to call this falling photography! Regardless, let me explain the physical setup of how I got this shot. It was at night time, so I used an external flash that was mounted on a tripod located to the right of my body. My Digital SLR was on a tripod well, directly in the middle of the road. My tripod was as low as it could get (about 3 feet).

A stool was placed in the middle of the road, and in order to help the camera 'see' the stool in the darkness, I placed an LED light on top of it and adjusted the focus until the LED looked sharp, then turned off auto-focus because it is unnecessary to use auto-focus after you have the stool in focus. I put the self-timer on 10 seconds, ran to the stool, sat on it, pulled up my shorts, put the pillowcase over them, got into a pose, and waited for the camera to take the picture.



This is the main trick behind levitation photography: Get one shot of a person either standing or sitting on a stool, and another shot with no person or stool in the frame. Using a tripod is necessary.

That's a white pillow case I'm "wearing" by the way; I thought it looked more aesthetically pleasing and less contemporary than green shorts. Heh... Maybe not the coolest idea, but whatever. I actually took about 20 different shots of myself in different poses, but this was my favorite.

Now that we have the 2 essential shots we need, lets open them up into Photoshop. Put both of the images into the same document by dragging and dropping or copying and pasting them in. Have the image with the stool be the top layer, and the image with no stool be the bottom layer. Select the top layer and then erase the stool by using an eraser tool or by using a layer mask. Ta-da! The stool is gone, and it looks like you are floating in mid-air.

To flip myself upside down I selected my body using the *Rectangle Marquee Tool*, right-clicked and selected *Free Transform*. I rotated my body 180 degrees and also moved it upward a little higher from the road. This is very easy to do in a night-time situation like this one because the background is completely black. If you are in an environment that has a background that isn't a solid color, you will have to either carefully erase everything around your body and then flip it upside down, or somehow suspend yourself upside down by either hanging your feet from a rope or by leaning your legs up against something and then erasing the object.

Probably the most well known image that showcases the "upside-down levitation trick" is "The Smothering" by Miss Aniela. It's been rumored that someone was holding her by her ankles and the hands were later taken out in Photoshop. This "standing on head upside down" photo was created by using the same technique.



Denis Darzacq (that link leads to his levitation portfolio) also creates very interesting levitation photographs, and he does it with no Photoshop. He uses break dancers for models and captures them when they are in mid-air at just the right moment. Here is a YouTube video that shows him taking pictures in action.

I would highly recommend watching this video too! Some of Denis' work is included in the video, as well as a bunch of different photographic optical illusions that are not covered in this book.



This image on the left was created with four layers. The camera was on a tripod and was on manual mode to make sure each exposure was identical in terms of brightness, focus, and white balance. One photo was taken of only me sitting on the couch, and the other three photos were of me holding the pillow, chair, and knife. I then layered the images on top of one another and erased the arms and hands that were holding the objects. After that, I made it black and white, added a texture, and put some skulls on the couch.



Here is the same technique, just a different subject and composition. The person was laying on a stool and kicking their feet up into the air. A slow shutter speed causes the motion blur of the feet and hair to occur. If you need more support don't shy away from using multiple stools, especially if you are in really awkward poses.

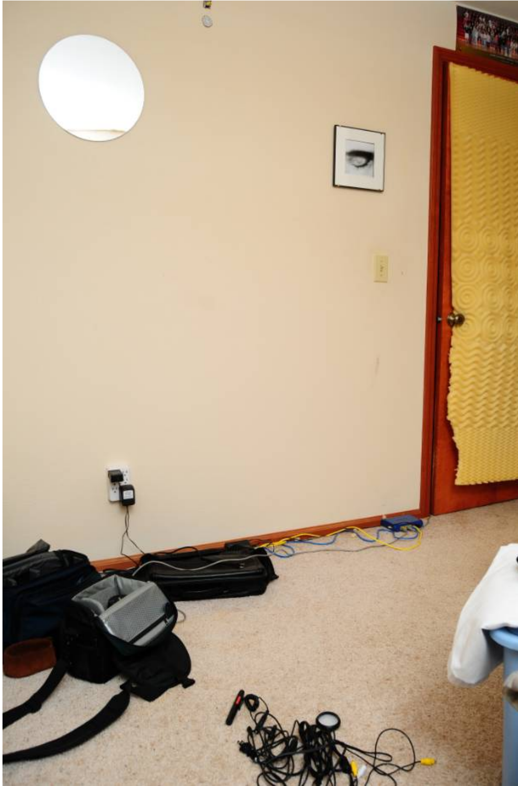


Talking about multiple stools, in this photo my hands were on two basketballs and my feet were on a little stool. This is actually harder than it looks because there is a lot of balancing weight on the basketballs that must be under control. The masking between the fingers in Photoshop takes a bit longer as well.

Perfecting Shadows

If you ever photograph yourself against a wall, you will most likely run into problems because the shadows of your body *and the stool* will show up on the wall. The background layer will be about twice as bright as the body layer. At first glance it might appear to be a tricky situation, but I have a solution to fix it.

Here are two example photographs:



Layer 1 (bottom layer)



Layer 0 (top layer)

Here is what makes this seem like a difficult image to deal with: My arm is in front of the stool and the shadows of the stool are on layer 0 but not on layer 1. If we started to mask out the stool as we would normally, it would look unrealistic. We need to take some extra steps for this image to look realistic.

In order to remove the stool and maintain the shadows of your body, follow these steps:

1. Create a layer mask on the top layer as you normally would.

2. Select the top layer (not the layer mask) and then carefully make a selection of the arm and hand. You can use the Quick Select Tool (this is what I used on this image) or the Pen Tool. Use Refine Edge located at the top to further adjust your selection if it isn't accurate enough. In this particular case, I am going to select everything but my hand, arm, back, and bottom. The selection will act as a "wall" when we create the layer mask.

3. After you have made your selection, select the layer mask and start painting black with a very large brush (400-1400 pixels) with the hardness set to 0. The stool is gone, but we need to bring the shadows back.



4. With your selection still active showing the marching ants, select the Burn tool then go to the top and set the brush size about to about the same size of the leg shadow (in this particular case it is roughly 700pixels) and set the brush hardness to 0%. Select Midtones for the range and lower the exposure to about 50% or so.

   If you took the photograph using harsh lighting you will need to select a harder brush. Soft lighting is easier to deal with.

5. Make sure the bottom layer is selected and burn your shadows in. The stool is now removed, and artificial shadows have been added.



If you want *real* shadows, you will have to tie a rope around your ankle and then somehow hoist yourself up in mid air and then clone out the rope. This isn't worth it in most cases! Using artificial shadows is easier.



Although levitation photography is most popular with people,
it can also applied to objects (and animals) as well.

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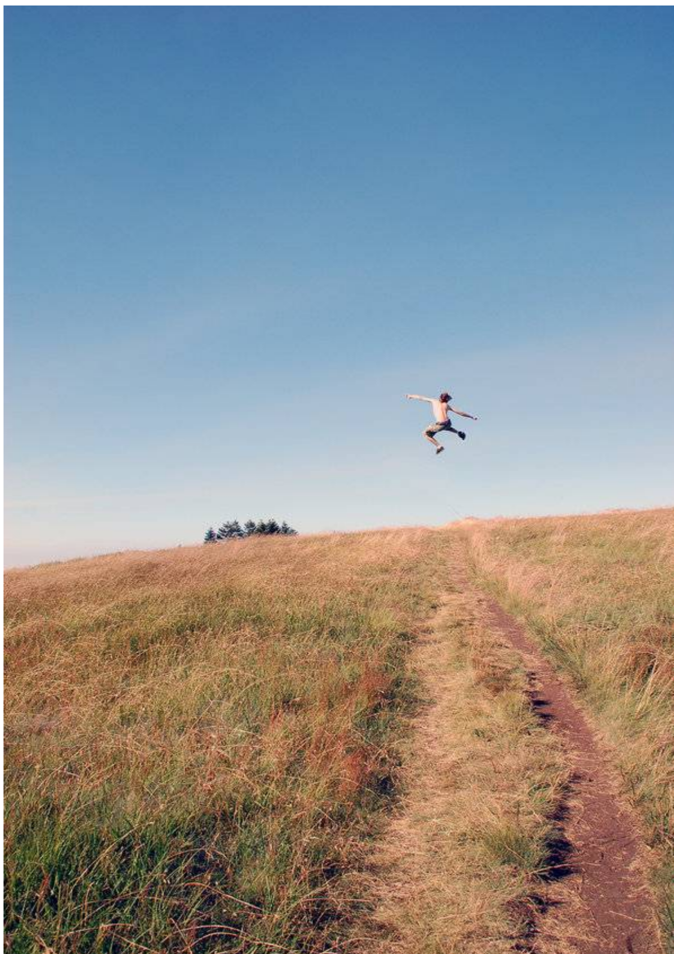
Of course, you can always just screw Photoshop and just jump for real!

Levitation Photography over Horizons

Another easy way to do a levitation trick is to simply get a person jumping over the horizon. If the background is simple and they can jump high enough to get *just* over the horizon, all you have to do in Photoshop is duplicate the layer, select the person with the Rectangular Marquee Tool (this does not have to be accurate. In fact, leave about an inch of padding between your model and the selection), press CTRL+T and move the person higher up into the sky and then press Enter to place the selection.

You can use a soft eraser or layer mask to remove the rectangle shape around the body and Content-Aware Fill or the Clone Stamp Tool to fill in the 'old' model on the bottom layer.

If you want to create more space around the subject, all you have to do is expand the canvas size (*Image > Canvas Size*) select a portion of one side of the photo using the rectangular marquee tool, and stretch it out the edge of the canvas. This is exactly what I did to the picture on the right. The little image in the top right corner is the original, and the big image is the expanded one. The simple background was made possible because it was really, really foggy that day.





Floating Fruit

This can be done with a blank background which will only require one shot, or you can have a complex background which will require one shot of the fruit plus another shot of just the background. This is the same technique used in the invisible man.



Setting up the Shot

I don't have the original photographs for this image but I can still explain how I created it in my studio. I had a white sheet hanging down from the ceiling about 1 foot in front of the wall with an external flash resting on the floor behind it, facing upward with an optical slave attached to the flash and another light (the main light) to light up the front of the subject. Then the main light bounced off the wall and back onto the banana to light it up (click the "my studio" link above to visually see what I am describing) which also triggered the optical slave to fire off the flash behind the bed sheet. The plate was resting on a separate white sheet on a stool.

Taking the Shot

But how did I make the banana pieces float in mid air? I cut the banana into separate pieces and then slid a shish kabob stick in the middle of the banana (be careful because the banana pieces can and will break apart). In order to make the entire thing float in mid air, I had an assistant carefully hold the base of the banana on its edges and the top of the shish kabob stick. We went through 2-3 bananas until we got it right. We had to experiment with different kinds of sticks until one worked. Pencils, pens, small sticks, and toothpicks to not work with bananas.

In Photoshop

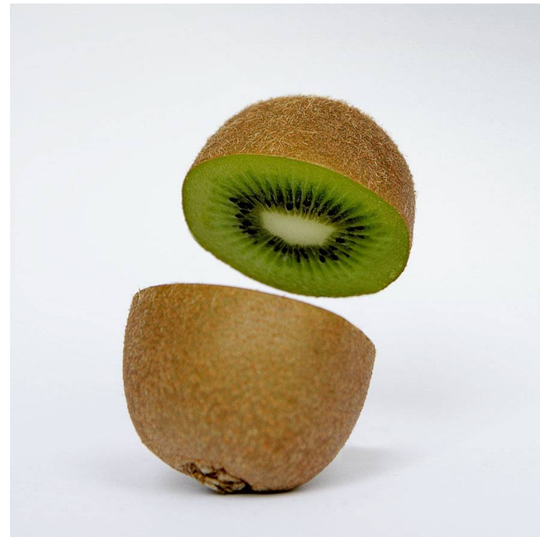
I made everything a little bit brighter by using the Dodge tool (I wanted everything to blasting white) and then simply took a white paint brush and painted over the shish kabob stick to get rid of it. I used the Clone Stamp tool to remove any shish kabob stick that was remaining on the actual banana pieces.

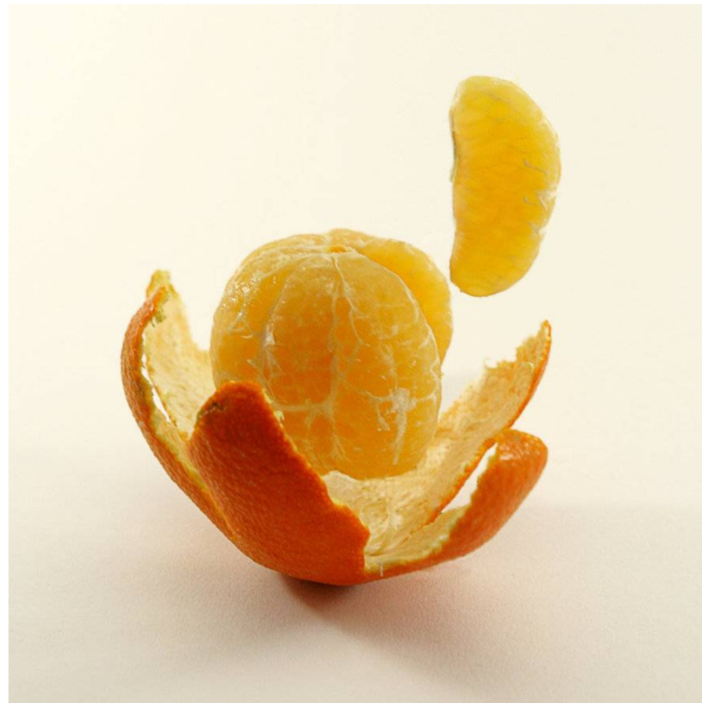
This second image of the banana (on the right) was made by simply selecting the individual slices and moving them downward (To be exact, I used a marquee tool, selected the slice I wanted to move by pressing CTRL+T, and then dragged and dropped the slice lower, and rotated it a little bit by grabbing the corners). I added the hand holding the knife later; it was a completely different photo that I took at a different time. It's so easy to add it into the frame because 1) it isn't touching anything, and 2) the white background makes everything consistent and really easy to pop different items in and out.



You can do this with any other fruit or vegetable, don't just limit yourself to bananas! Try using toothpicks to hold the pieces together for round fruits.







The Invisible Man #1





D3S_8416



D3S_8417

When using this technique, you can have objects look like they are floating in mid-air under the same lightening conditions. It looks more realistic than those poorly done, fake-looking compositions where people take a bunch of different pictures and make a photo collage out of them. Don't get me wrong, some of those pieces look excellent, but when you just go to Google Images, steal some pictures of some shoes and a skateboard and then slap it on to a photo you took of the street, it lacks realism, which is what we're going for. When you get everything done in-camera, the lighting conditions are all the same.

The only thing I had to add to this photo was a faint shadow underneath the skateboard because after erasing the red container, the original shadow wasn't really there. I duplicated the layer, went around the skateboard with the pen tool and then slightly darkened the cement underneath it with the Burn tool. I also added some mild HDR Toning in CS5 to make the photo more crisp.

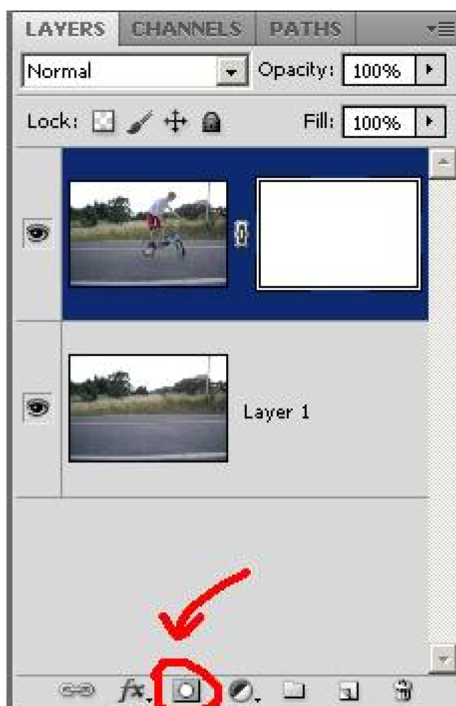
The Invisible Man #2

Put your camera on a tripod and set it to manual mode, set your white balance to something other than Auto, and turn off your auto-focus. We are going to be taking two pictures that will we later layer on top of one another in Photoshop, so they need to be identical with each other in terms of aperture, shutter speed, focus, white balance, and composition. Below are two images I took after locking my camera down on a tripod and using the self-timer:



As you can tell, the end result of this is going to be somewhat unique, because I haven't seen many “Invisible Bicyclist” pictures laying around the internet, have you? :)

After you have taken your two photos, load them up into a single Photoshop document by either clicking *File > Scripts > Load Files into Stack...* or by simply dragging and dropping both of the images into the same document.



Make sure that the layer with the person in the frame is on the top layer. If you have to reorder the layers, do so.

Next, create a layer mask on the top layer by clicking the button that is circled in red. Then, with the layer mask selected, take a black brush and start painting over the arms and legs of the human. The body parts will be erased and the background will be intact. Do this for the entire body.

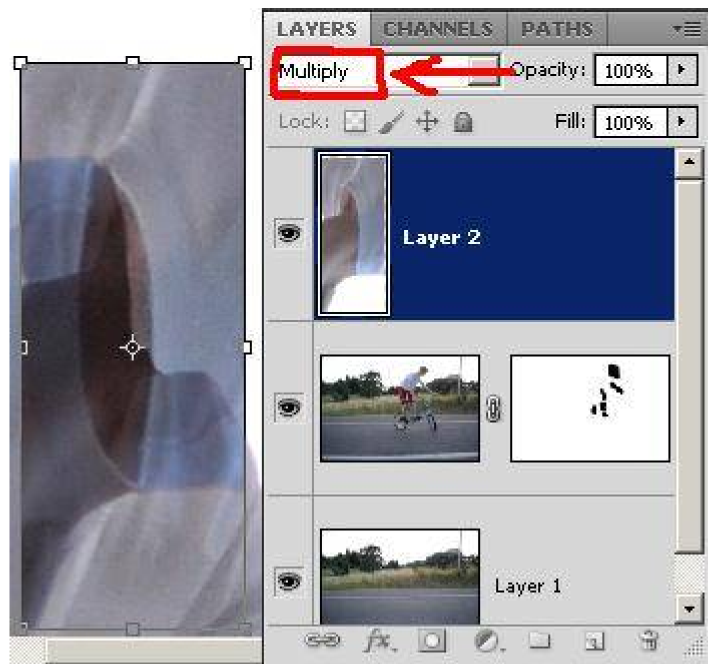
Note: You could also reduce the Opacity of the brush to 50% so you could still see him a little bit but also be able to see through him, if that's the look that you're going for.

Now that we have carefully erased the head, arms, and legs, how do we fix the areas around his sleeve and neckline? Simply follow these steps:



1. Select the top layer (not the layer mask) and then make a selection around the collar line.
2. Copy the selected area by hitting CTRL+C on your keyboard.
3. Paste it by hitting CTRL+V. This will make a new layer of the neck only.
4. Hit CTRL+T on your keyboard and then right click inside of your selection and click Rotate 180 degrees.

5. Place the upside collar right over the existing collar below it to create an oval shape. You can change the blending mode to Multiply so you can see what you are doing. Hit the Enter or Return key to set it in place. You can set the blending mode back to Normal now, if you wish.





6. Create a layer mask on the new layer and mask out most of everything until you get something that looks similar to the image below.
7. Hit CTRL+E to merge the two top layers together.

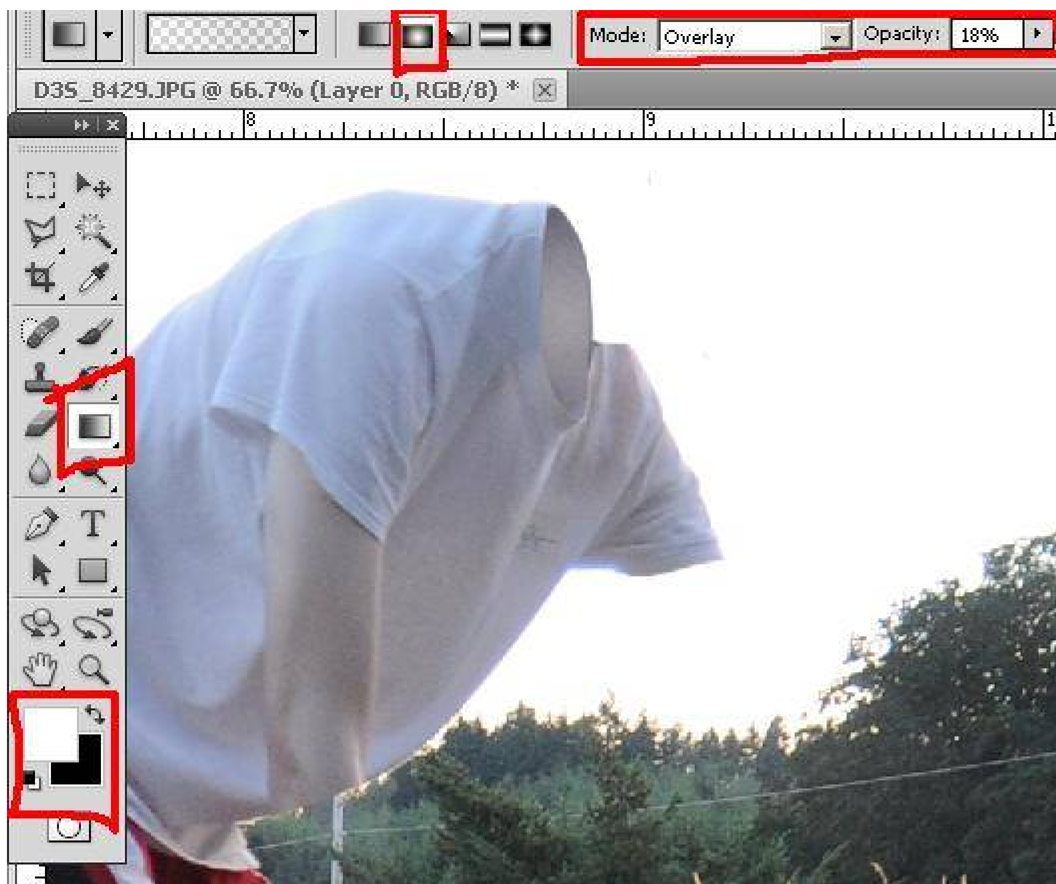


8. To get rid of the neck inside of the shirt, grab the Pen tool and make a selection around the hole with a feather radius of .3, hit OK, then push the delete key.



9. Grab the Clone Stamp Tool and ALT+Click on an area on his shirt, then click inside of the area inside of the selection and fill it in.

10. If you want to add some shading to make it look more realistic, grab the Gradient tool (click and hold your mouse over the paint bucket icon and it will appear), then go to the top and select the Radial Gradient icon. Set the Mode to either Overlay or Multiply and reduce the Opacity to 5%-20%, then click and hold your mouse in the center of the selection and drag your cursor to the edge of the selection, you will now see some shadow. Deselect the selection by right clicking inside of it and then clicking Deselect.



And that's all there is to it. Use the same method on the end of the sleeves and the shorts. Remember to use the Clone Stamp Tool to fill in any areas where the leg/arm is in front of the body.



Here is the final result. I replaced the sky using a layer mask, and also propped his torso up using the Puppet Warp feature in CS5. In order to remove the part where his leg was covering the tire, I simply copied part of the tire, pasted it, rotated it so it fit into place over his leg, and then masked out everything except the tire. For the handle bars, I painted over them with a dark brush.







Flesh Manipulations





Flesh manipulations are shocking images because we as humans are used to seeing faces every day that we never stop and think twice when we see them. But, if you displace an eye, turn a mouth upside down, or rotate an eyebrow 90 degrees, it can have a powerful impact on your viewer. The image above is a collage of several separate images that can be seen on the right. A white background was used to make the isolation of the body parts easy in Photoshop, and a flash was used for bright, *consistent* lighting conditions, which is key.

In order to isolate the body parts, dodge the highlights in the background or select them with the pen tool and erase everything but the body part itself. Once you have all the body parts isolated, you can mix-and-match body parts to create your own creature! Create a layer mask on each of the layers and use big, soft paint brushes to fade out the body part so it smoothly transitions into the next one. With a layer selected, you can also type CTRL+T, right click inside of the selection and select Warp to warp/stretch the body part according to your standards.

Screaming Head

A quick and easy example of a good flesh manipulation would be to take a picture of yourself screaming and then make your mouth cover your entire face.



Step 1: Take a picture of yourself screaming. You can also take an additional photo of a *closeup* of your mouth and use that if you don't want to loose any resolution.

Step 2: Make a selection around the mouth with the Rectangular Marquee Tool.

Step 3: Copy the selection (CTRL+C) and then Paste the selection (CTRL+V) It will make a new layer with the mouth only.

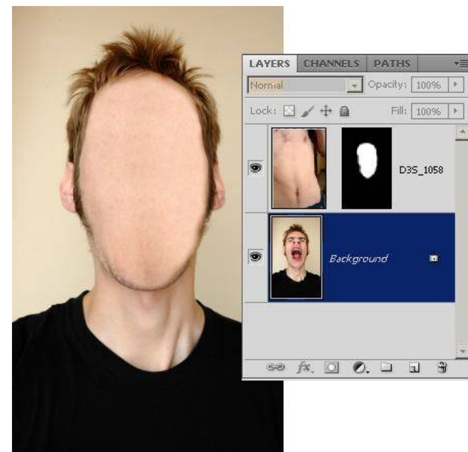
Step 4: Hit CTRL+T to enter Free-Transform mode and re-size the mouth over your the head so it covers most of it up. Push enter to apply.

Step 5: Create a layer mask on the top layer and grab a soft black brush using the Paint Brush tool, and then paint around the edges of the mouth on the layer mask to erase the hard edges. This guy looks pretty loud and in-your-face, doesn't he?



Blank Head Trick

Take a picture of a plain part of your body, such as your stomach or back. Put the layer on top of the head layer and create a layer mask and erase the edges. You can use the Clone Stamp Tool to fix certain areas of skin by ALT+Clicking on a plain area of skin and then by clicking and painting in the area that you want to get rid of, such as a bump or pimple. I didn't have to use the clone stamp tool that much in this example. Remember to take the images with the same camera settings and under the same lighting conditions so the skin-tones match up.



Using Content-Aware Scaling

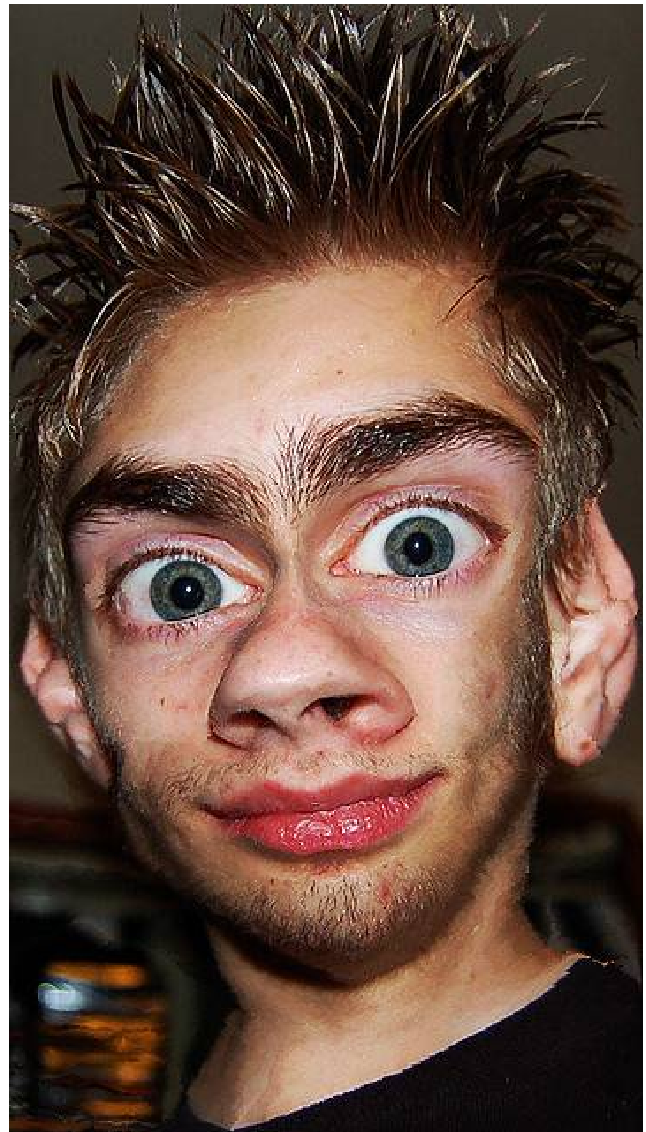
This technique of flesh manipulation requires CS4 or higher. I love using this method because it is fast, dead-simple, fun, and of course hilarious.

Step 1: Import a regular head-shot photo into Photoshop.

Step 2: Type CTRL+A or CMD+A to select the entire photo.

Step 3: Go up to *Edit > Content-Aware Scale*. You can then grab one of the corners of the selection and either shrink it or expand it. That's all there is to it! This is way funner than using the Liquify tool in my opinion.





Fake Tilt-Shift Photography



Regular tilt-shift photography is where you use a special lens that can tilt the depth of field plane in order to get more (or less) of a subject in focus. It's particularly used in macro photography because the depth of field is so shallow that it is hard to get your subject in focus using regular lenses. This 'fake tilt-shift' photography trick is best applied when you are at a slight aerial position, but it also works when you're not. The effect makes everything look like miniature figurine models.





Let's start out with a photograph of some skyscraper buildings.



Step 1: Duplicate the layer.

Step 2: Add a Lens Blur to the duplicated layer by going to *Filter > Blur > Lens Blur*. Make sure "Source" is set to none in the drop-down box (it should be anyway), and then set the radius to something around 20-40 if you are on a 12-21 megapixel camera. This varies from image to image, so if you don't like the result of the first attempt, restart and try it again with a different radius amount.

Step 3: Create a layer mask on the duplicated layer.

Step 4: Grab the Gradient Tool and then select the Reflection Gradient at the top.

Step 5: Hold down the shift key and draw a line out from where you want your focus plane to be. If the effect is reversed, simply hit the X key to swap the foreground color with the background color and try it again. Your photograph now looks like everything in it is miniature!



Mixing Day with Night

Sadly but surely, we are now at the very last trick in this ebook. As far as I know, this technique has been done only a few times in history, so more content on this subject is needed. Please email me if you make anything as a result of reading this so I can feature your content in this chapter (or any of the other chapters for that matter).

Here is the technique: Take two photos outside, one during the day and one during the night. Take both photos in the exact same location using a tripod. Next, layer them on top of one another inside of Photoshop and then selectively mask out half of the top layer so it blends into the bottom one. This will create an effect like this:



As you can see I've made the tree remain in daylight and then masked in the sky to reveal the night photo. You can see the stars because not a lot of clouds were present during that night.

I've seen this technique being done with equirectangular panoramas in the city before and it was fabulous. This effect works very well in the city because the lights coming from the skyscraper buildings adds a whole new dynamic to the scene.

This technique obviously requires your camera to be outside for a long period of time on a tripod. If you are not in a situation where you can do this, take one shot of the scene during the day and then come back to the same location during the night and try to match the composition as best as you can remember it through your viewfinder. Have Photoshop re-align the two layers on top of each other by selecting both of the layers and then hitting *Edit > Auto-Align Layers*. This will lock up the layers and match up their features to the best of Photoshop's ability. Dom Bower has created a video tutorial that describes how to do this process inside of GIMP.

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My Flickr Photostream

My DeviantART Profile

My Twitter Page

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All the best,

Evan

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Photo Credits

Recommended Reading

Here are some other books that may be of interest to you.



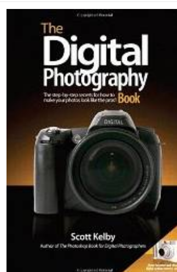
Photographic Amusements by Walter E. Woodbury

This is a free online ebook available on books.google.com. It is an old book (back in the film days, before Photoshop) but has *tons* of trick photography examples and is probably the best resource on trick photography. There is even an entire Flickr group dedicated to this book.



Night Photography & Light Painting by Brent Pearson

This is the one and only ebook on not only capturing night images, but also how to paint them with light.



Digital Photography Book by Scott Kelby

This three part series is great for beginners. It talks about things like getting tack-sharp images, composition, tripods and other gear, how to use lighting, off-camera flash etc.

Photo Fun by Webster Watts

An old book that has a chapter on trick photography.

Special Effects Photography article by Andrew Davidhazy

This article defines "Trick Photography and Special Effects" as a term and gives various of examples different tricks and effects.

M1263